



Flávia Yumi Ichikura

# **GeoJSON para dados espaço-temporal no contexto do projeto Pauliceia 2.0**

São José dos Campos, SP

Fevereiro de 2021

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Trabalho de conclusão de curso apresentado ao Instituto de Ciência e Tecnologia – UNIFESP, como parte das atividades para obtenção do título de Bacharel em Ciência da Computação.

Universidade Federal de São Paulo – UNIFESP

Instituto de Ciência de Tecnologia

Bacharelado em Ciência da Computação

Orientador: Prof. Dra. Daniela Leal Musa

São José dos Campos, SP

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Trabalho aprovado em 02 de Março de 2021:

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**Prof. Dra. Daniela Leal Musa**  
Orientador

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**Professor**  
Convidado 1

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**Professor**  
Convidado 2

São José dos Campos, SP  
Fevereiro de 2021

*Este trabalho é dedicado à minha família, que foi o principal suporte para que eu pudesse ingressar na UNIFESP.*

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Sou grata à professora Dra. Daniela Musa, ao grupo do projeto Pauliceia 2.0, aos meus familiares e amigos que me apoiaram e motivaram no desenvolvimento deste trabalho.

# Resumo

Pauliceia 2.0 é um projeto que uniu diferentes instituições para o desenvolvimento de uma plataforma colaborativa online. Essa plataforma conta com mapas referentes à cidade de São Paulo no período de desenvolvimento industrial, entre 1870 e 1940.

Como o escopo do projeto trata de objetos que sofreram alterações ao longo de um período de tempo, é necessário que o banco de dados da plataforma seja capaz de armazenar todas essas mudanças. Um dos modelos de dados que compreende essa necessidade é o modelo de dados espaço-temporal, que possui propriedades geográficas e temporais para o registro dos objetos em estudo.

Atualmente, o Pauliceia 2.0 faz uso do formato *shapefile* para a exportação dos seus dados, mas devido às suas limitações e ao crescente número de outras plataformas que suportam o formato GeoJSON, este trabalho visa analisar o uso desse novo formato. O GeoJSON é baseado em Notação de Objetos *JavaScript* (JSON) e possui *tags* capazes de armazenar os objetos do Pauliceia 2.0 como dados do modelo espaço-temporal.

**Palavras-chaves:** Pauliceia 2.0. banco de dados. modelo espaço-temporal. GeoJSON.

# Abstract

Pauliceia 2.0 is a project that united different institutions in order to develop an online collaborative platform. This platform contains maps related to the city of São Paulo around its industrial development period, which is between 1870 and 1940.

Because the project's scop is about objects that have changed over a period of time, it is necessary that the platform's database is able to storage all these alterations. One of the database models that is capable to do so is the spatial-temporal model, it contains spatial and temporal properties to record all of the studied objetcs.

Currently, Pauliceia 2.0 uses the shapefile format to storage its data, but given its limitations and the growing number of other platforms that are using the GeoJSON format, one had studied the possibility of using this new format. The GeoJSON format is based on JavaScript Object Notation (JSON) and has tags capable of recording the project's objects in the spatioal-temporal format.

**Key-words:** Pauliceia 2.0. databases. spatial-temporal model. GeoJSON.



# Lista de ilustrações

Figura 1 – Comparação de representação espacial . . . . .	16
Figura 2 – Classificações do tempo . . . . .	17
Figura 3 – DER da tabela de histórico de nós do banco de dados do OSM . . . . .	20
Figura 4 – DER da tabela de nós atuais do banco de dados do OSM . . . . .	20
Figura 5 – DER de tabelas <i>changset</i> do banco de dados do OSM . . . . .	21
Figura 6 – DER da tabela de comentários do <i>changeset</i> do banco de dados do OSM . . . . .	22
Figura 7 – DER da tabela <i>redactions</i> do banco de dados do OSM . . . . .	22
Figura 8 – DER da tabela <i>current_way_nodes</i> do banco de dados do OSM . . . . .	22
Figura 9 – DER do banco de dados do Pauliceia 2.0 . . . . .	23
Figura 10 – Resultado de pesquisa na tabela <i>keyword</i> no banco de dados do Pauliceia 2.0 . . . . .	24
Figura 11 – Relacionamento entre as tabelas <i>keyword</i> , <i>layer</i> e <i>reference</i> no banco de dados do Pauliceia 2.0 . . . . .	25
Figura 12 – Relacionamento entre as tabelas <i>keyword</i> , <i>curator</i> e <i>pauliceia_user</i> no banco de dados do Pauliceia 2.0 . . . . .	25
Figura 13 – Tabela de <Feature> e de Version<Geometry> relativas à enchente de 1929 em São Paulo no banco de dados do Pauliceia 2.0 . . . . .	26
Figura 14 – Tupla da tabela <i>a_enchente_de_1929_em_sp</i> . . . . .	26
Figura 15 – Multi-polígono cadastrado na tabela <i>a_enchente_de_1929_em_sp</i> . . . . .	27
Figura 16 – Modelo de dados geométricos . . . . .	34
Figura 17 – Imagem exportada pelo Overpass Turbo . . . . .	42
Figura 18 – Dados da UNIFESP exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda) . . . . .	43
Figura 19 – Dados da FATEC exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda) . . . . .	44
Figura 20 – Dados da FATEC exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda) . . . . .	44
Figura 21 – Interface gráfica do <i>script</i> em Python 3 . . . . .	46
Figura 22 – Colunas da tabela <i>cinemas_de_sao_paulo</i> . . . . .	47
Figura 23 – GeoJSON gerado a partir da tabela <i>cinemas_de_sao_paulo</i> . . . . .	47
Figura 24 – Representação da tag <i>"properties"</i> no geojson.io . . . . .	48
Figura 25 – Representação da tag <i>"coordinates"</i> no geojson.io . . . . .	48
Figura 26 – Representação do Anexo E pelo Google Maps . . . . .	49

# Lista de tabelas

Tabela 1 – Formas geométricas do <i>shapefile</i> . . . . .	28
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# Lista de abreviaturas e siglas

DER	Diagrama Entidade Relacionamento
ER	Entidade Relacionamento
FATEC	Faculdade de Tecnologia
GeoJSON	Notação Geográfica de Objetos <i>JavaScript</i>
INPE	Instituto Nacional de Pesquisas Espaciais
JOSM	Java OpenStreetMap
JSON	Notação de Objetos <i>JavaScript</i>
OGC	Open Geospatial Consortium
OSM	OpenStreetMap
SIG	Sistema de Informação Geográficas
UNIFESP	Universidade Federal de São Paulo
VGI	Volunteered Geographic Information

# Sumário

<b>1</b>	<b>Introdução</b>	<b>13</b>
1.1	Motivação	13
1.2	Objetivos	14
1.2.1	Objetivo Geral	14
1.2.2	Objetivos Específicos	14
<b>2</b>	<b>Fundamentação Teórica</b>	<b>15</b>
2.1	Modelo Espaço-Temporal	16
2.1.1	Representação espacial	16
2.1.2	Representação temporal	16
2.1.2.1	Armazenamento no banco de dados	17
2.1.3	Identidade do Objeto	18
2.2	OpenStreetMap	19
2.2.1	Modelo de dados do OSM	19
2.3	Modelo de Dados Pauliceia 2.0	23
2.4	Exportação de Dados do Pauliceia 2.0	28
2.4.1	Shapefile	28
2.4.2	GeoJSON	32
2.4.2.1	Tipo Geométricos	33
2.4.2.2	Feature e FeatureCollection	38
2.4.2.3	Foreign Members	39
2.4.2.4	Compatibilidade com o PostgreSQL	40
<b>3</b>	<b>Trabalhos Relacionados</b>	<b>41</b>
3.1	Crismapp	41
3.2	Projeto do Embrapa	41
3.3	Aplicação para o controle de tráfego	41
3.4	Dados do OpenStreetMap em GeoJSON	42
3.4.1	Overpass Turbo	42
3.4.2	JOSM	43
<b>4</b>	<b>GeoJSON para Contexto do Pauliceia 2.0</b>	<b>45</b>
4.1	Proposta de estrutura	45
4.2	Exportação de dados	46
4.2.1	Resultados da exportação	46

<b>5 Conclusão . . . . .</b>	<b>50</b>
<b>Referências . . . . .</b>	<b>51</b>
 <b>Anexos</b>	 <b>53</b>
<b>ANEXO A Arquivo osm gerado pelo OpenStreetMap . . . . .</b>	<b>54</b>
<b>ANEXO B GeoJSON gerado pelo Overpass Turbo . . . . .</b>	<b>99</b>
<b>ANEXO C GeoJSON gerado pelo JOSM . . . . .</b>	<b>104</b>
<b>ANEXO D <i>Script</i> em Python 3 . . . . .</b>	<b>204</b>
<b>ANEXO E GeoJSON gerado pelo <i>script</i> em Python 3 . . . . .</b>	<b>209</b>

# 1 Introdução

São inúmeras as perspectivas abertas pela tecnologia digital nas atividades humanas, uma delas é as Humanidades Digitais, um campo de estudo proveniente da intersecção da Ciência da Computação com as Ciências Humanas que cada vez mais recebe foco, promovendo novas possibilidades para ambas as áreas.

Dentro deste contexto, foi desenvolvido o projeto Pauliceia 2.0 (2016-2021), financiado pelo programa e-Science da Fapesp, fruto de parceria entre a UNIFESP (Campus Guarulhos e São José dos Campos), o INPE (Instituto Nacional de Pesquisas Espaciais), o Arquivo do Estado de São Paulo e a Emory University (Estados Unidos). No Pauliceia 2.0 está sendo desenvolvida uma plataforma computacional para pesquisa histórica colaborativa com uso dos conceitos de Volunteered Geographic Information (VGI) e padrões como o Open Geospatial Consortium (OGC).

A plataforma possui, atualmente, dados espaço temporais da cidade de São Paulo referente ao período de sua modernização urbano-industrial (1870-1940) e visa a projeção desses dados por pesquisadores da área na forma de mapas.

Atualmente, nos dados disponibilizados no Portal Pauliceia 2.0, consta apenas a localização geográfica da informação e palavras-chaves associadas, que não representam adequadamente sua riqueza e complexidade. Dependendo da aplicação final, muitos aspectos podem ser explorados para enriquecer os dados espaço-temporal.

Os dados históricos existem em diferentes formatos (mapas, imagens, texto) e fontes, sendo os conteúdos das mais diversas áreas como artes, historia, geografia, artefatos, etc. Além disso, eles são coletados, mantidos e publicados por diferentes instituições, que usam seus próprios padrões.

Uma funcionalidade importante a ser desenvolvida é a possibilidade dos pesquisadores exportarem os dados disponíveis no Portal (mapas, geolocalização, etc) para uso em suas pesquisas. Para isso, é necessário desenvolver um módulo que permita a seleção e exportação desses dados para formatos padrões, de modo a serem utilizados em outras plataformas. Na versão atual do Portal Pauliceia, há a exportação dos dados geolocalizados no formato *shapefile*, porém também há a necessidade de geração dos dados em outros formatos padrão como, por exemplo, o GeoJSON.

## 1.1 Motivação

Um dos grandes problemas da versão atual do Pauliceia está na exportação limitada dos dados para um único formato (*shapefile*), de modo a serem usados em outras plataformas. A importação de dados também é outra limitação, pois eles são inseridos via arquivos .csv. Com

isso, há a falta de interoperabilidade sintática e semântica. Essa falta limita a capacidade dos dados e contribuem para a fragmentação da informação e acumulação em repositórios isolados.

Para facilitar a importação, exportação e utilização em outras plataformas é necessário estabelecer um formato padrão. Um dos padrões que está sendo amplamente utilizado é o GeoJSON. Entretanto, no conjunto mínimo de *tags* do GeoJSON consta apenas campos para dados espaciais. Surge aqui o ponto de pesquisa deste trabalho de conclusão.

a) Como representar os dados temporais do Pauliceia 2.0 no formato GeoJSON de forma que eles possam ser importados e exportados facilmente de/para outras Plataformas?

## 1.2 Objetivos

### 1.2.1 Objetivo Geral

Estender o GeoJSON de modo a representar os dados espaço-temporal do Projeto Pauliceia 2.0.

### 1.2.2 Objetivos Específicos

- Analisar os metadados geralmente utilizados em projetos que utilizam dados espaço-temporal;
- Como o GeoJSON possui *tags* específicas para descrever algumas propriedades de seus objetos, deve-se definir e especificar como serão utilizadas no Pauliceia 2.0.

## 2 Fundamentação Teórica

O Pauliceia 2.0 é o resultado de um Projeto realizado por pesquisadores da Escola de Filosofia, Letras e Ciências Humanas da Unifesp-Guarulhos, o Instituto de Ciência e Tecnologia da Unifesp-São José dos Campos, o Arquivo Público do Estado de São Paulo, o Instituto Nacional de Pesquisas Espaciais (INPE) e a Emory University.

Desde 2017 está em desenvolvimento uma plataforma digital de mapeamento colaborativo de dados históricos referentes à cidade de São Paulo entre os anos de 1870 e 1940.

Os dados históricos trabalhados pelo projeto são do período de crescimento e mudanças da cidade de São Paulo, devido à sua modernização urbano-industrial, culminante da crescente produção cafeeira, a chegada dos imigrantes, as instalações de ferrovias e indústrias (MOTA, 2007).

Os pesquisadores e interessados são capazes de gerenciar os dados armazenados na plataforma, sendo possível analisar, organizar e alimentar a base de dados com conjuntos de dados próprios. Esses dados possuem geolocalização e características dos objetos que representam (MARIANO, 2018). Assim, os usuários podem tanto produzir mapas com dados próprios como também contribuir para o enriquecimento da base de dados do Pauliceia 2.0, em que poderão cruzar com dados já presentes na base e possibilitar novas análises (FERLA; GOMES, 2019).

Por ser uma plataforma colaborativa, na qual os usuários podem inserir quaisquer dados sem a necessidade de comprovação de veracidade ou de direitos autorais, existe a possibilidade de alguns dados serem inapropriados. Assim, a fiscalização dos dados é de responsabilidade dos colaboradores do Pauliceia 2.0, que podem reportar essas situações por meio de denúncias na própria plataforma (FERLA; GOMES, 2019).

O principal diferencial do projeto está no uso de dados espaço-temporais, que são responsáveis pela representação espacial e temporal de objetos.



## 2.1 Modelo Espaço-Temporal

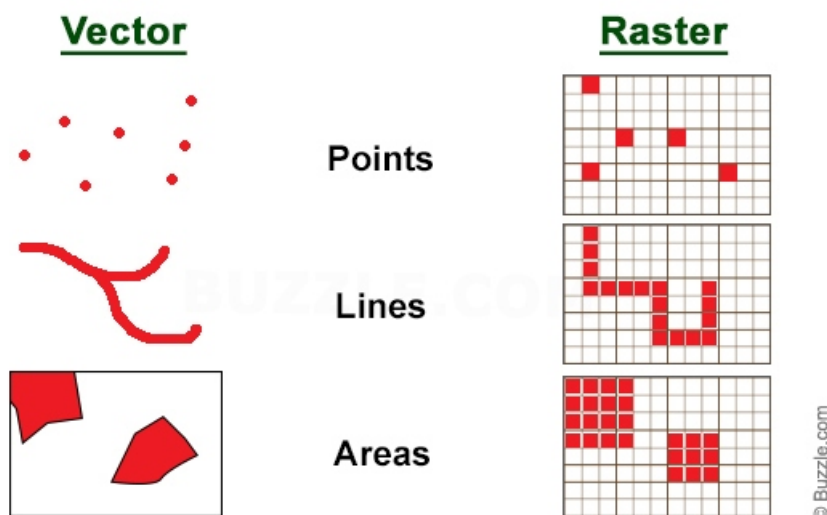
(CASANOVA et al., 2005) afirma que a maioria dos Sistemas de Informações Geográficas (SIG) faz uso de dados estáticos para representações de fenômenos espaciais, que são compatíveis com diversas aplicações, porém não são eficientes para representações de fenômenos dinâmicos, ou seja, que se alteram continuamente com a passagem do tempo. Assim, o modelo mais apropriado para representar esses fenômenos seria o espaço-temporal, que reflete os fenômenos temporais e físicos do espaço em estudo.

Como o escopo do projeto Pauliceia 2.0 engloba fenômenos dinâmicos que aconteceram na cidade de São Paulo, consequentemente, o modelo mais adequado para o seu banco de dados seria o espaço-temporal.

### 2.1.1 Representação espacial

Os dados espaciais do modelo espaço-temporal podem ser classificados como vetoriais ou *raster*. Os dados vetoriais são referentes as geometrias primitivas, como pontos, linhas e polígonos. Diferentemente, os dados *raster* representam espaços a partir do uso de grades, onde cada célula é uma região do espaço (MAKRIS et al., 2019). A Figura 1 indica como um mesmo objeto é representado vetorialmente e na forma *raster*.

Figura 1 – Comparação de representação espacial



Fonte: Buzzle, 2018

### 2.1.2 Representação temporal

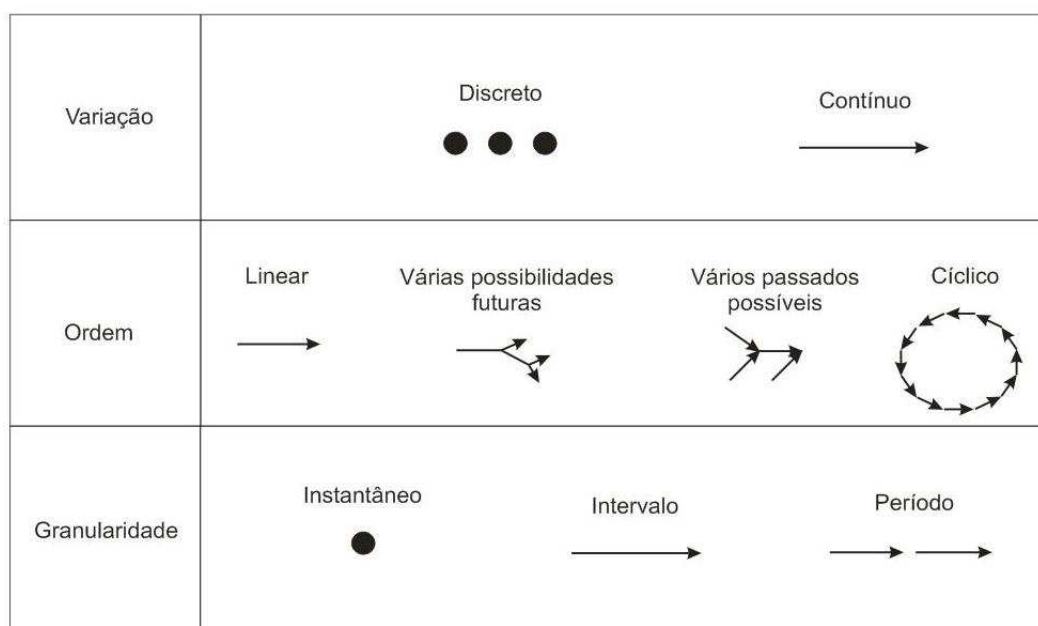
Para representar o tempo, deve-se levar em consideração três elementos: ordem de tempo, variação temporal e granularidade (SCHAFFER, 2012 apud (WORDBOYS, DUNCKHAM, 2004)).

A ordem do tempo pode ser linear, ramificado e circular. No tempo linearmente ordenado, considera-se o tempo como uma reta no qual existem pontos distintos que estão organizados sequencialmente por ordem de precedência. No tempo ramificado, quaisquer pontos distintos podem ser predecessores ou sucessores de qualquer outro ponto. Já no tempo circular, representa tempos em que seus eventos se repetem periodicamente, como as estações do ano (SCHAFFER, 2012).

A variação temporal classifica o tempo como contínuo ou discreto. Segundo (CASANOVA et al., 2005), entendemos o tempo como contínuo por natureza, porém para processos em que o tempo é medido em intervalos, iguais ou não, utiliza-se representações discretas.

Quanto à granularidade, classifica-se o tempo como instante de tempo, intervalo de tempo ou período temporal. Esse conceito está atrelado à variação temporal discreta. O instante de tempo, seria um ponto na reta temporal, um intervalo de tempo seria o tempo entre dois pontos distintos quaisquer da reta temporal, um período de tempo seria um conjunto finito de intervalos de tempo (SCHAFFER, 2012). A Figura 2 ilustra essas classificações do tempo.

Figura 2 – Classificações do tempo



Fonte: Schafer, 2012

### 2.1.2.1 Armazenamento no banco de dados

Para (MAKRIS et al., 2019), os dados temporais do modelo de banco espaço-temporal, devem ser capazes de armazenar três tempos a respeito de um registro. O primeiro seria o tempo de transação, instante em que o objeto foi inserido no banco de dados. O segundo, o tempo válido,

que é o tempo que objeto existiu no mundo real. Já o terceiro tempo uma combinação entre os outros dois e serviria para rastrear as mudanças do objeto.

### 2.1.3 Identidade do Objeto

Para identificar um objeto, mesmo que ele sofra mudanças tanto de espaço quanto de qualquer outra característica, existe uma em particular, que é praticamente imutável, a identidade. Esse conceito tem seu valor alterado somente em casos particulares, em que as características do objeto se alteraram suficientemente para que se torne um novo objeto (CASANOVA et al., 2005).

## 2.2 OpenStreetMap

O OpenStreetMap (OSM) é uma plataforma online que disponibiliza de forma aberta dados geográficos. Lançada em 2004, o escopo principal do projeto envolvia ruas e estradas, porém com seu sucesso e subsequente maior desenvolvimento, passou a englobar diferentes objetos geográficos como prédios, casas, pontos de interesses diversos, entre outros (ARSANJANI et al., 2015).

Seus contribuidores são mapeadores voluntários, como profissionais das área de SIG e entusiastas. Desse modo, a ferramenta inovou no método de coleta de dados geográficos, pois a comunidade não é exclusivamente formada por especialistas.

A estrutura do modelo de banco de dados do Pauliceia 2.0 levou em considerações o existente nesta plataforma.

### 2.2.1 Modelo de dados do OSM

O modelo de dados do OSM é composto por *elements*, *tags* e *changeset*. *Elements* podem ser nós (pontos), caminhos (linhas e polígonos) e relações (informam as conexões entre os *elements*, como rotas e multi polígonos). O conceito de *tags* no OSM é diferente do JSON, referiremos a esse termo nessa subseção no conceito do OSM, que é a entidade que armazena as propriedades que caracterizam os *elemets*. *Changeset* armazenam as alterações nos dados (ELEMENTOS, 2019).

No OSM, um ponto é formado por sua latitude e longitude, são utilizados para descrever pontos de interesses (POI) desconexos, como um poste, ou na formação de caminhos, como uma estrada. Caso seja um ponto desconexo, é necessário que contenha pelo menos uma *tag* associada. Já uma relação agrupa *elements*, portanto, nós, caminhos e as próprias relações. Cada *element* é um membro que possui um papel dentro dessa relação (ELEMENTOS, 2019).

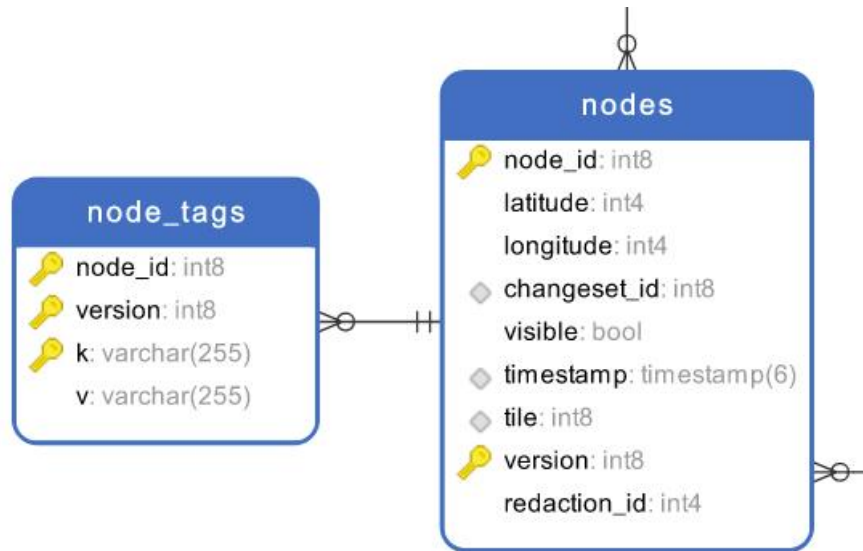
Uma *tag* é formada por um par chave e valor. Existem *tags* pré cadastradas, porém também é possível cadastrar novas desde que sejam verificáveis, isto é, possam ser provadas como falsas ou verdadeiras. Como exemplo, em (VERIFICABILIDADE, 2019) é citado que a propriedade altura não deve ter valor igual a alto ou baixo, o correto seria um número natural.

O *changeset* é um grupo de alterações/edições do OSM. Uma alteração pode ser uma edição, exclusão ou adição de algum dado. É necessário que seja adicionado um comentário pertinente para identificar qual foi a alteração e/ou sua motivação.

O banco de dados é do modelo ER, constituindo uma tabela para cada tipo de elemento, *tags*, históricos, além de tabelas para identificação de usuário, comentários, linguagem e *changeset*, entre outras. Como exemplo ilustrativo, temos as tabelas que armazenam dados do elemento nós nas Figuras 3 e 4. Nelas, existem a tabela que armazena o histórico, *nodes* e *nodes\_tags*, e

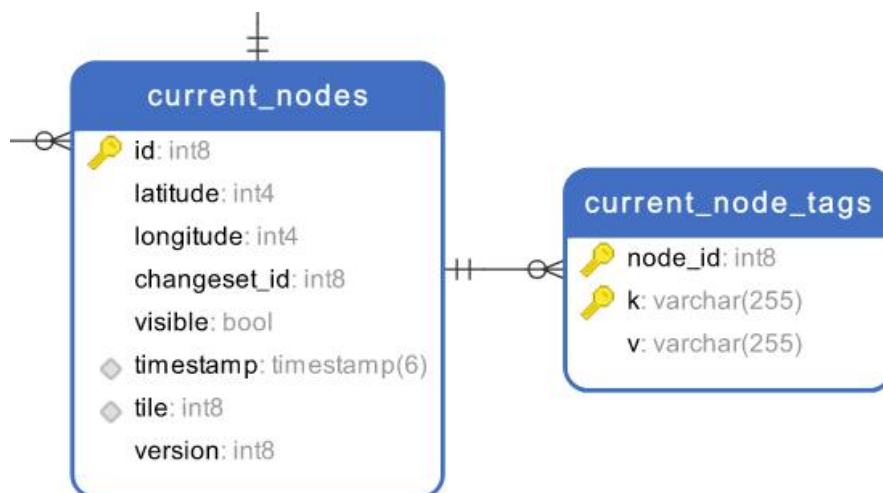
outras que armazenam a versão atual, *current\_node* e *current\_nodes\_tags*. Esse cenário de existir uma tabela histórica, associada a uma tabela de *tags* e uma tabela para dados atuais associada a outra tabela de *tags* existe para os demais elementos (caminhos/*ways* e relações/*relations*).

Figura 3 – DER da tabela de histórico de nós do banco de dados do OSM



Fonte: OpenStreetMap Wiki, 2016

Figura 4 – DER da tabela de nós atuais do banco de dados do OSM

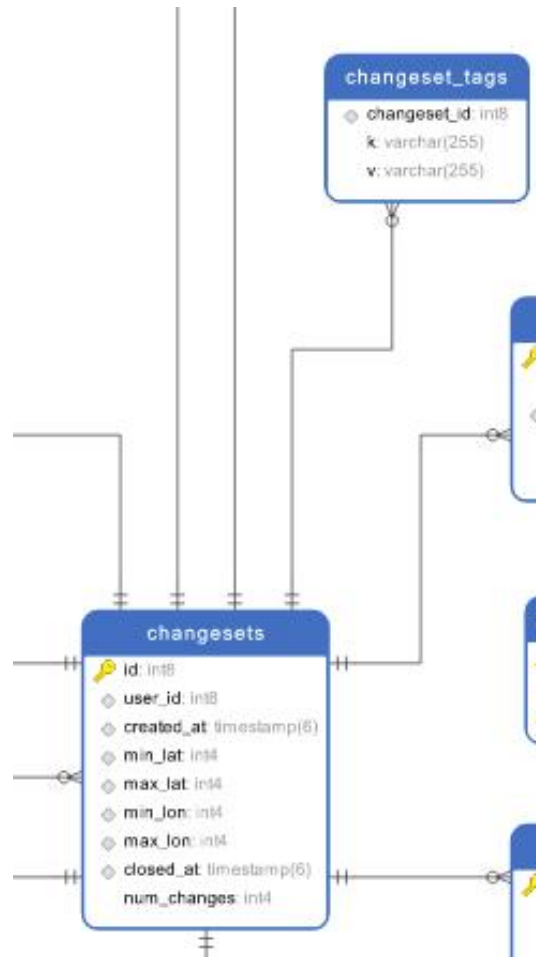


Fonte: OpenStreetMap Wiki, 2016

As tabelas que armazenam as alterações nos elementos são a *changeset*, *changeset\_comments* e a *changeset\_tags*. A *changeset* identifica o usuário que fez a alteração e a área geográfica de onde

foi modificado, *changeset\_comment* adiciona o comentário, como já dito, que descreve a alteração e a *changeset\_tags* demonstra *tags* associadas ao *changeset*. Essas tabelas estão nas Figuras 5 e 6.

Figura 5 – DER de tabelas *changeset* do banco de dados do OSM



Fonte: OpenStreetMap Wiki, 2016

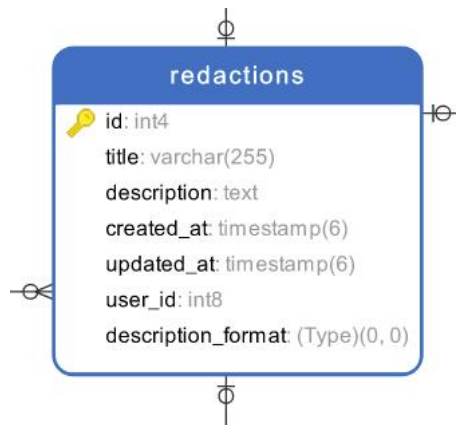
Existem ainda as tabelas *redactions* e a *current\_way\_nodes*, que armazenam conexões entre diferentes *elements*. A *redactions*, Figura 7, armazena quais elementos estão incluídos numa relação, portanto possui um campo identificador, o "id", e em cada tabela de histórico de cada elemento, existe uma chave estrangeira correspondente, a "redaction\_id". Como um caminho é formado por nós, a tabela *current\_way\_nodes* conecta quais nós formam quais caminhos, ela está ilustrada na Figura 8.

Figura 6 – DER da tabela de comentários do *changeset* do banco de dados do OSM



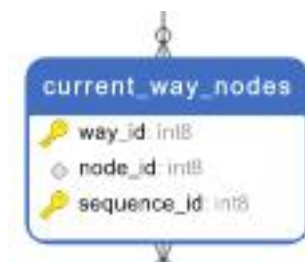
Fonte: OpenStreetMap Wiki, 2016

Figura 7 – DER da tabela *redactions* do banco de dados do OSM



Fonte: OpenStreetMap Wiki, 2016

Figura 8 – DER da tabela *current\_way\_nodes* do banco de dados do OSM



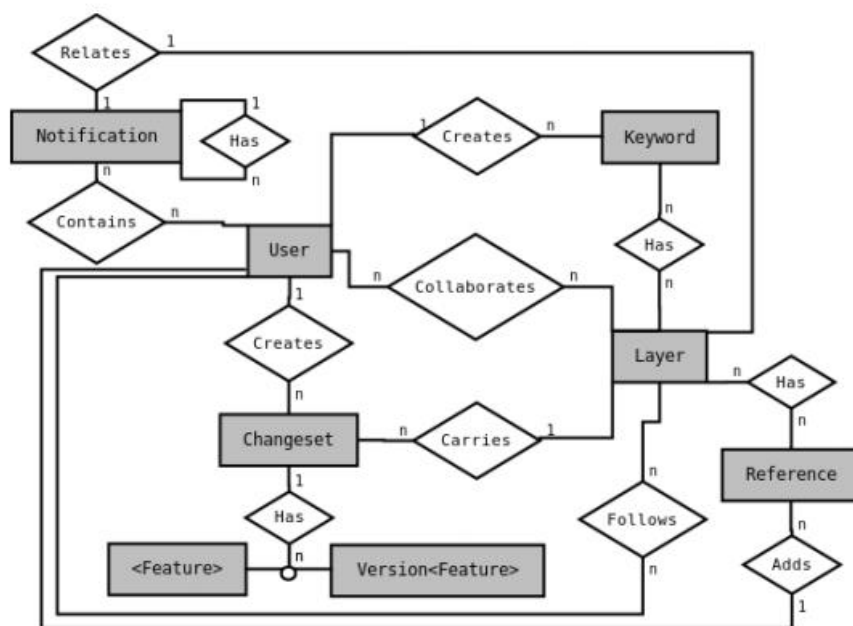
Fonte: OpenStreetMap Wiki, 2016

## 2.3 Modelo de Dados Pauliceia 2.0

A base de dados do Pauliceia 2.0 está armazenada em tabelas dentro de um banco de dados, que segue o modelo relacional. De acordo com (HEUSER, 1998), esse é o modelo mais utilizado para modelar banco de dados, que são definidos em um diagrama usualmente denominado como modelo Entidade Relacionamento (ER).

Nessa abordagem, as entidades são abstrações de um cenário, que representam um conjunto de objetos pertencentes ao mundo real ou não. As entidades contêm características, que no contexto, são informações relevantes que definem o objeto em estudo. As conexões que as entidades mantêm consigo e com outras são denominadas relações. A Figura 9 é o diagrama entidade-relacionamento (DER) do banco de dados do Pauliceia 2.0.

Figura 9 – DER do banco de dados do Pauliceia 2.0



Fonte: Adaptado de Mariano, 2018

Segundo (MARIANO, 2018), as principais entidades desse diagrama, são *Layer*, *Keyword*, *User*, *Reference* e *Notification*.

Os dados de um projeto podem ser organizados em diferentes camadas de acordo com as características do cenário em estudo, como estradas e rios, para que eles possam ser visualmente analisados nos mapas separadamente. Na Figura 9, existe uma entidade referente às camadas, que seria a *Layer*. No projeto, uma camada é um conjunto de dados vetoriais.

As camadas são descritas por palavras-chave, que é representada pela entidade *Keyword*. Existem palavras-chave pré definidas, mas usuários possuem permissão para criar novas. Dife-



rentemente de outros atributos, a fonte dessa camada é uma característica na qual existe especificamente a entidade *Reference* para armazená-la e deve ser preenchida com dados de referência bibliográfica que sigam o padrão bibtex (MARIANO, 2018).

A tabela *keyword* é referente a entidade de mesmo nome, nela há quatro campos, “*keyword\_id*”, serial que armazena o código da palavra-chave na tabela, “*name*”, texto que contém o campo de descrição, “*created\_at*”, campo *timestamp* para o momento de criação do cadastro, e “*user\_id\_creator*”, código de identificação de quem criou o campo. A Figura 10 apresenta parte dos resultados de uma pesquisa nessa tabela, nela há exemplos de palavras-chave utilizadas cadastradas no cinema. O relacionamento no banco entre as tabelas *keyword*, *layer*, *reference* e as intermediárias estão ilustrados na Figura 11.

Figura 10 – Resultado de pesquisa na tabela *keyword* no banco de dados do Pauliceia 2.0

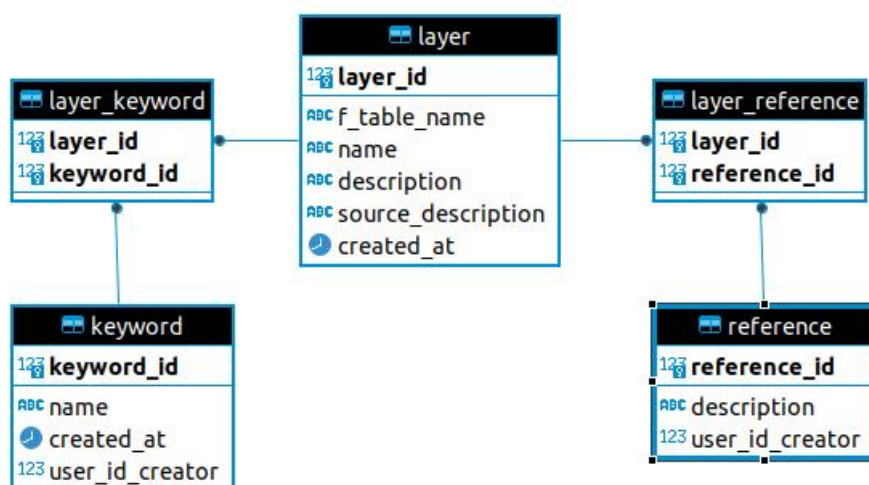
keyword_id	name	created_at	user_id_creator
62	1914	2020-06-10 14:14:35	92
63	cinema de rua	2020-06-10 17:36:25	97
64	doenças	2020-06-10 17:40:26	5
65	anarquista	2020-06-10 23:34:40	82
66	libertário	2020-06-10 23:34:56	82
67	Cinemas	2020-06-11 11:44:31	36
68	edifícios	2020-06-11 21:00:14	88
69	Avenida Sao Joao	2020-06-11 21:00:40	88
70	construção	2020-06-11 21:01:54	88
71	imprensa	2020-06-11 23:13:02	100
72	periódicos	2020-06-11 23:13:19	100
73	Hoteis	2020-06-12 17:12:28	13
74	pharmacia , farmacias, fai	2020-06-12 18:01:54	102
76	banco	2020-06-13 00:27:04	83

Fonte: O Autor, 2021

A entidade *User* armazena informações referentes aos usuários do sistema. Para acessar o projeto um usuário pode ou não estar logado, mas para fazer alterações nos dados do banco é necessário que esteja nesse último status. Entre os usuários logados, existe o usuário normal, que tem permissão para adicionar ou alterar dados por ele adicionados, o usuário curador, que possui as mesmas permissões que um usuário normal com o adicional da possibilidade de modificar informações das (*keywords*) de um *layer* de outro usuário, e o usuário administrador, que pode inserir, deletar e alterar quaisquer entidade do banco (MARIANO, 2018). No banco do projeto, existe a tabela *pauliceia\_user* que representa a entidade *User*, nela existe o campo booleano *is\_the\_admin*, que indica se o usuário em questão é ou não do tipo administrador. Também existente no banco está a tabela *curator*, que indica quais cadastros da tabela *keyword* o usuário tem acesso à modificações. O relacionamento entre essas tabelas está presente na Figura 12.

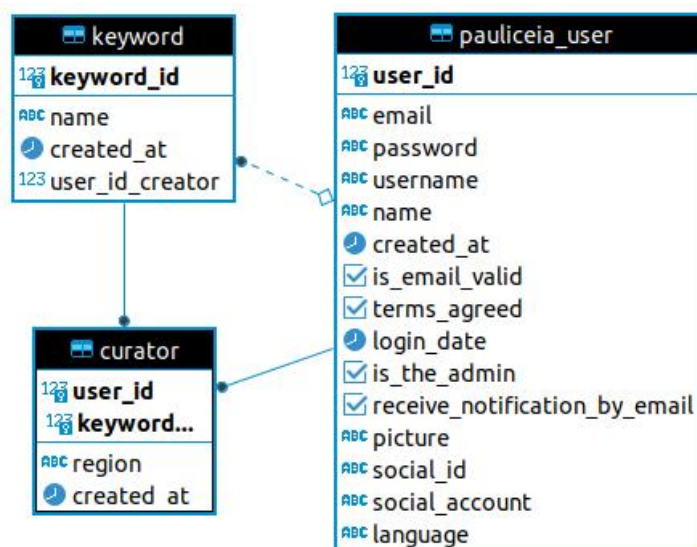
O Pauliceia 2.0 permite que usuários adicionem comentários aos seus dados e ao conjunto

Figura 11 – Relacionamento entre as tabelas *keyword*, *layer* e *reference* no banco de dados do Pauliceia 2.0



Fonte: O Autor, 2021

Figura 12 – Relacionamento entre as tabelas *keyword*, *curator* e *pauliceia\_user* no banco de dados do Pauliceia 2.0



Fonte: O Autor, 2021

de dados de terceiros. Essa função pode contribuir positivamente para a qualidade dos conjuntos de dados, visto que na plataforma, os dados não são validados antes de serem adicionados ao banco. No diagrama da Figura 9, a entidade *Notification* representa o comentário.

Ainda há o conceito de *feature*, que representam alguma localização, prédio, avenida, etc. No DER do Pauliceia 2.0, o conjunto de *features* são representados pela entidade <Feature>, que

armazena, então, os dados históricos vetoriais. Para cada camada é criada uma entidade, em que os atributos são criados a partir do conjunto de dados inseridos pelos usuários à plataforma. Como já informado, os dados podem ser alterados, assim existem tabelas que garantem a existência de um histórico sobre eles. No caso, a entidade *Version<Geometry>* armazena as diferentes versões de *<Feature>* e *Changeset* os dados necessários para realizar o controle delas, como descrição de mudanças e datas de criação (MARIANO, 2018).

Nas tabelas de *feature*, do projeto Pauliceia 2.0, existem alguns campos fixos, que são: “id”, “geom”, “version” e “changeset\_id”. O campo “id” é serial e armazena um código de identificação do cadastro, “geom” é do tipo *geometry*, “version” e “changeset\_id” são int. Como exemplo, na Figura 13 temos o cenário da enchente de 1929 em São Paulo e as suas tabelas que são referentes as entidades *<Feature>* e *Version<Geometry>*. Como exemplo de cadastro, a Figura 14 é uma tupla da tabela *a\_enchente\_de\_1929\_em\_sp*, no qual a figura geométrica é um multipolígono que representa a área em azul da Figura 15.

Figura 13 – Tabela de *<Feature>* e de *Version<Geometry>* relativas à enchente de 1929 em São Paulo no banco de dados do Pauliceia 2.0

id	geom	result	area	perimetro	version	changeset_id
123						

id	geom	result	area	perimetro	version	changeset_id
123						

Fonte: O Autor, 2021

Figura 14 – Tupla da tabela *a\_enchente\_de\_1929\_em\_sp*

id	geom	result	area	perimetro	version	changeset_id
1	MULTIPOLYGON (((-46.53256495976944 -23.4	1	822.720,0003	360.256	1	42

Fonte: O Autor, 2021

No banco do projeto, existem 3 *schemas*, as entidades aqui discutidas estão todas presentes no esquema *public*.

Figura 15 – Multi-polígono cadastrado na tabela a\_enchente\_de\_1929\_em\_sp



Fonte: O Autor, 2021

## 2.4 Exportação de Dados do Pauliceia 2.0

Os usuários do Pauliceia 2.0 podem realizar o *download* dos dados geo referenciados do projeto, para que utilizem em pesquisas próprias e em outras plataformas. Atualmente, os dados do projeto são exportados no formato *shapefile*.

### 2.4.1 Shapefile

O *shapefile* é um formato de dados espaciais desenvolvido pela Esri que armazena posições, formas e atributos de uma referência geográfica não topológica em um conjunto de arquivos no formato .zip (ArcGIS Enterprise, 2019).

O arquivo .zip contém minimamente um arquivo principal no formato .shp, um de indexação em .shx e outro para uma tabela dBASE no formato .dbf. O arquivo principal possui uma série de registros onde cada um se refere a uma geometria e seus vértices, descrevendo portanto o formato da referência geográfica. No arquivo da tabela dBASE estão os atributos dos registros e no arquivo de indexação está descrita a relação entre os registros do arquivo principal e os da tabela dBASE.

Existem 14 formas geométricas suportadas pelo *shapefile*, a Tabela 1 apresenta cada forma, o significado e quais campos dela devem ser indicados no arquivo principal. Em alguns formatos deve ser indicado o *Bounding Box*, que delimita o espaço em que a forma está inclusa totalmente, para área em 2D, por exemplo, é formado pelos valores máximos e mínimos de X e Y da forma geométrica (ESRI White Paper, 1998).

Algumas formas podem possuir anéis lineares, que são utilizados para descrever a fronteira de um polígono. Um anel linear é formado por quatro ou mais pontos, em arquivos *shapefile* não há restrições para que dois pontos sejam descritos no mesmo anel consecutivamente, portanto os leitores desse tipo de arquivo devem estar aptos a lidar com esse tipo de situação.

Tabela 1 – Formas geométricas do *shapefile*

Tipo de forma	Significado	Registros
<i>Null Shape</i>	Forma sem dados geométricos, costumeiramente utilizados para armazenar o local de registro de uma forma que será descrita futuramente.	Não contém.
<i>Point</i>	Referente a um vértice	Ordenadas X e Y, ambas do tipo <i>Double</i> .

<i>MultiPoint</i>	Representa um conjunto de vértices.	Quatro ordenadas do tipo <i>Double</i> que representam o <i>Bounding Box</i> , a quantidade de pontos, que do tipo <i>Integer</i> , e um vetor de <i>Points</i> .
<i>PolyLine</i>	Armazena segmentos de retas, cada segmento pode possuir mais de dois pontos.	Quatro ordenadas do tipo <i>Double</i> que representam o <i>Bounding Box</i> , a quantidade de segmentos e o total de pontos, que são do tipo <i>Integer</i> , um vetor de <i>Integer</i> que contém o índice do primeiro ponto que descreve o segmento no vetor de pontos e esse vetor do tipo <i>Points</i> .
<i>Polygon</i>	Representa um ou um conjunto de anéis lineares.	Mesmo da forma <i>PolyLine</i> .
<i>PointM</i>	Um par de coordenadas X,Y com uma medida M.	Um valor para X, Y e M do tipo <i>Double</i> .
<i>MultiPointM</i>	Representa um conjunto de <i>PointM</i> .	Quatro valores para a <i>Bounding Box</i> , a quantidade de pontos, que é do tipo <i>Integer</i> , um vetor do tipo <i>Point</i> , um vetor de duas posições contendo os valores de mínimo e máximo da medida M e um vetor do tipo <i>Double</i> que armazena os valores dessa medida de cada <i>Point</i> .

<i>PolyLineM</i>	Conceito muito semelhante ao de <i>PolyLine</i> , com a diferença de que cada ponto possui uma medida M.	Quatro valores para a <i>Bounding Box</i> , a quantidade de segmentos e pontos, que são do tipo <i>Integer</i> , um vetor do tipo <i>Point</i> , um vetor no tipo <i>Integer</i> que armazena as posições de cada ponto que inicia o segmento no vetor de pontos, um vetor de duas posições contendo os valores de mínimo e máximo da medida M e um vetor do tipo <i>Double</i> que armazena os valores dessa medida M de cada <i>Point</i> .
<i>PolygonM</i>	Representa um conjunto de anéis lineares de pontos com medida M.	Mesmo de <i>PolyLineM</i> .
<i>PointZ</i>	Um par de coordenadas X,Y,Z com uma medida M.	Um valor para X, Y,Z e M do tipo <i>Double</i> .
<i>MultiPointZ</i>	Representa um conjunto de <i>PointZ</i> .	Quatro valores para a <i>Bounding Box</i> , a quantidade de pontos, que é do tipo <i>Integer</i> , um vetor de duas posições para a <i>Bounding Box</i> de Z do tipo <i>Double</i> , um vetor <i>Double</i> para armazenar os valores de Z, um vetor do tipo <i>Point</i> , um vetor de duas posições contendo os valores de mínimo e máximo da medida M e um vetor do tipo <i>Double</i> que armazena os valores dessa medida para cada <i>Point</i> .

<i>PolyLineZ</i>	<p>Conceito muito semelhante ao de <i>PolyLine</i>, com a diferença de que cada ponto possui uma medida M e um valor Z.</p>	<p>Quatro valores para a <i>Bounding Box</i>, a quantidade de segmentos e pontos, que são do tipo <i>Integer</i>, um vetor do tipo <i>Point</i>, um vetor no tipo <i>Integer</i> que armazena as posições de cada ponto que inicia o segmento no vetor de pontos, um vetor de duas posições contendo os valores de mínimo e máximo de Z e um vetor do tipo <i>Double</i> que armazena os valores de Z para cada <i>Point</i>, um vetor de duas posições contendo os valores de mínimo e máximo da medida M e um vetor do tipo <i>Double</i> que armazena os valores dessa medida M de cada <i>Point</i>.</p>
<i>PolygonZ</i>	<p>Representa um conjunto de anéis lineares de pontos com medida M e valor Z.</p>	<p>Mesmo de <i>PolyLineZ</i>.</p>



<i>MultiPatch</i>	Conjuntos de trechos de superfícies. Cada trecho pode ser descrito como do tipo <i>Triangle Strip</i> , <i>Triangle Fan</i> , <i>Outer Ring</i> , <i>Inner Ring</i> , <i>First Ring</i> ou somente <i>Ring</i> .	Quatro valores para a <i>Bounding Box</i> , a quantidade de trechos e de pontos e o tipo de cada trecho, que são valores do tipo <i>Integer</i> , um vetor do tipo <i>Point</i> , um vetor no tipo <i>Integer</i> que armazena as posições de cada ponto que inicia o segmento no vetor de pontos, um vetor de duas posições contendo os valores de mínimo e máximo de Z e um vetor do tipo <i>Double</i> que armazena os valores de Z para cada <i>Point</i> , um vetor de duas posições contendo os valores de mínimo e máximo da medida M e um vetor do tipo <i>Double</i> que armazena os valores dessa medida M de cada <i>Point</i> .
-------------------	--	---

---

Os tipos de dados numéricos armazenados são dos tipos *Integer* (4 bytes), para inteiros, e *Double* (8 bytes), para valores de ponto flutuante. Infinitos e valores *Not-a-Number* (NaN) não são suportados pelo formato, portanto valores NaN são convertidos para o menor número do padrão IEEE, que é o número -1.7976931348623158e+308 (ArcGIS Enterprise, 2016).

Os arquivos *shapefile* não conseguem armazenar mais de um tipo de geometria. No cabeçalho do arquivo principal há uma *flag* para indicar qual o formato geográfico que representa, caso existam mais de um tipo, não há ainda como lidar com esse campo para que se faça esse reconhecimento.

Para a leitura, a manipulação e visualização de arquivos *shapefile*, normalmente são utilizados softwares que consigam gerenciar arquivos de dados em formato SIG. Dentre os softwares disponíveis capazes de realizar essas tarefas, estão o ArcGIS, da Esri, e o *SPRING* desenvolvido pelo INPE.

## 2.4.2 GeoJSON

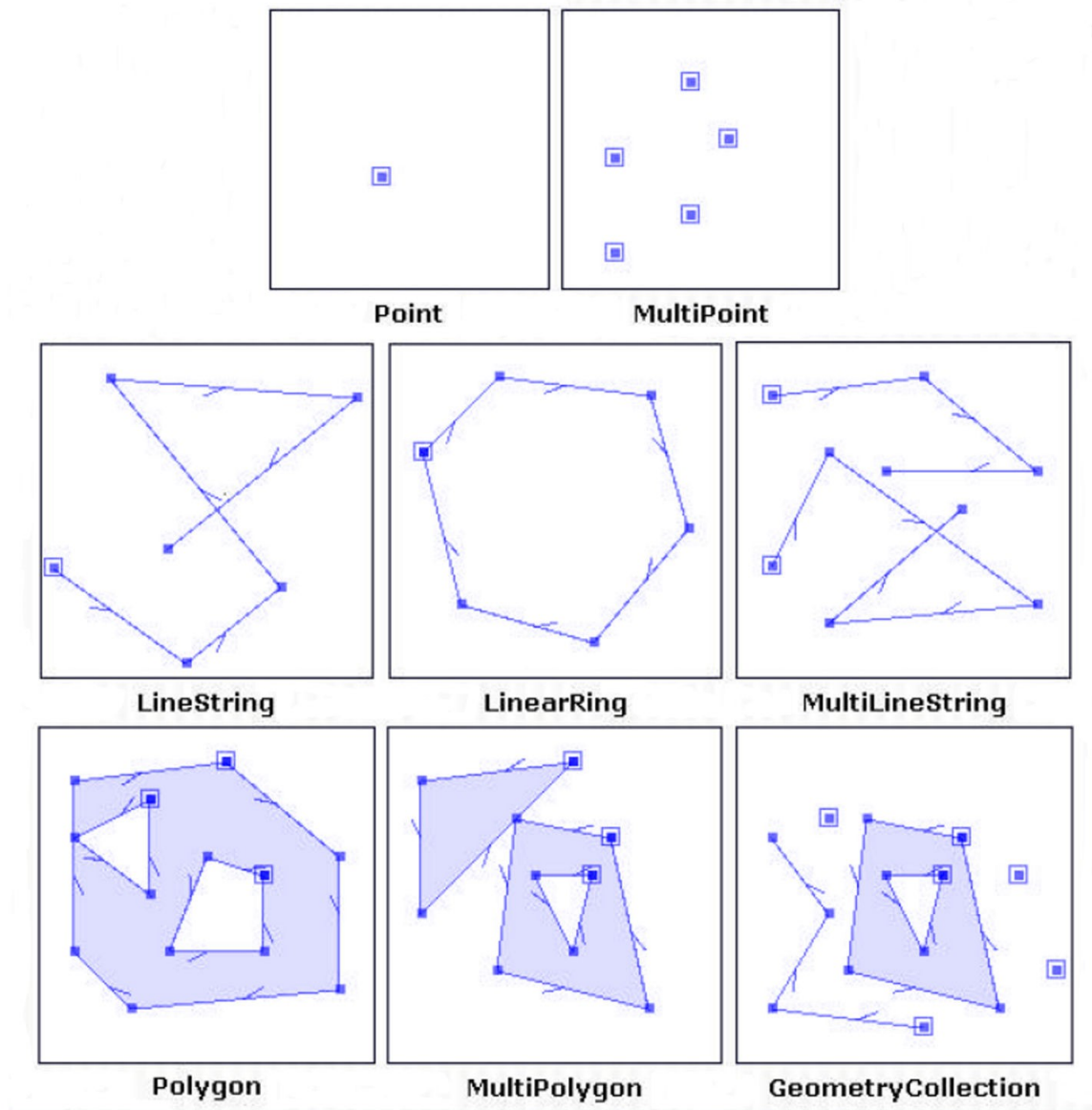
GeoJSON é uma estrutura de dados geográficos baseada no JavaScript Object Notation (JSON). Seus objetos representam regiões no espaço, entidades espacialmente ligadas, classificadas como *Feature* ou *FeatureCollection*. Uma *Feature* é composta por um objeto geométrico e as propriedades deles, já uma *FeatureCollection* corresponde a uma lista de *Features*. Os tipos geo-

métricos suportados são *Point*, *LineString*, *Polygon*, *MultiPoint*, *MultiLineString*, *MultiPolygon*, e *GeometryCollection*.

#### 2.4.2.1 Tipo Geométricos

Como citado o GeoJSON possui sete tipos geométricos, que são utilizados para representar pontos, curvas e superfícies. Cada objeto geométrico possui uma *tag* “*type*”, para o tipo geométrico, e uma *tag* “*coordinates*”, exceto para *GeometryCollection*, que contém uma *tag* “*geometry*” que armazena um *array* de objetos geométrico, que conseqüentemente, para cada um deles há uma *tag* “*type*” e outra “*coordinates*”. A Figura 16 apresenta de modo ilustrativo um exemplo para cada tipo de geometria e no decorrer desse subsubseção há um exemplo de como cada uma delas é descrita em arquivos GeoJSON.

Figura 16 – Modelo de dados geométricos



Fonte: HafenCity Universität Hamburg, 2006

A tag “*coordinates*” é um *array* para armazenar a(s) coordenada(s) do objeto. O formato dos valores armazenados em “*coordinates*” dependem do tipo geométrico. É altamente recomendado que as posições sejam formadas somente pelas coordenadas geográficas, portanto sem a adição de outros valores como o *timestamp*. Porém é opcional que a altura do objeto seja referenciado na posição (BUTLER MARTIN DALY, 2016).

Abaixo estão listados os tipo de cada objeto geométrico e um exemplo para cada:

- *Point*: utilizado para descrever um ponto, desse modo “*coordinates*” deve possuir somente uma posição.

```
1      {  
2          "type": "Point",  
3          "coordinates": [10, 20]  
4      }
```

- *MultiPoint*: utilizado para descrever diversos pontos. “*coordinates*” então é um *array* de posições, em que cada uma representa um ponto.

```
1      {  
2          "type": "MultiPoint",  
3          "coordinates": [  
4              [37, 81], [27, 96], [20, 20], [12, 10]  
5          ]  
6      }
```

- *LineString*: utilizado para descrever uma ou mais segmentos de retas conectados. “*coordinates*” é um *array* de posições, onde cada duas posições consecutivas representam um segmento de reta.

```
1      {  
2          "type": "LineString",  
3          "coordinates": [  
4              [54, 16], [20, 30], [35, 35]  
5          ]  
6      }
```

- *MultiLineString*: utilizados na descrição de conjuntos dos objetos classificados como *LineString*. A tag “coordinates” é um array de arrays com posições, nela cada array representa um objeto.

```
1      {
2          "type": "MultiLineString",
3          "coordinates": [
4              [[10, 10], [16, 16], [30, 20]],
5              [[40, 30], [20, 20], [10, 20], [30, 40]]
6          ]
7      }
```

- *Polygon*: É um array de anéis lineares. Anéis internos são utilizados para descrever os buracos de um polígono, suas coordenadas devem estar ordenadas no sentido horário, enquanto que as coordenadas do anel externo devem estar ordenadas no sentido anti-horário. Primeiro deve-se descrever o anel externo e em seguida seus anéis internos. Abaixo temos das linhas 1-6 um exemplo de um polígono sem buraco e das linhas 7-17 um exemplo com buraco.

```
1      {
2          "type": "Polygon",
3          "coordinates": [
4              [[10, 10], [20, 10], [15, 20], [10,10]]
5          ]
6      }
7      {
8          "type": "Polygon",
9          "coordinates": [
10             [
11                 [10, 0],[30, 0],[30, 30],[10, 30],
12                 [10, 0]
13             ],
14             [
15                 [15, 5],[15, 25],[25, 25],[25, 5],
16                 [15, 5]
17             ]
18         ]
19     }
```

- *MultiPolygon*: utilizados na descrição de conjuntos dos objetos que podem ser classificados como *Polygon*. A tag “coordinates” é um array de descrição de polígonos.

```
1      {
2          "type": "MultiPolygon",
3          "coordinates": [
4              [
5                  [
6                      [0, 0], [30, 0], [15, 15], [0, 0]
7                  ]
8              ],
9              [
10                 [
11                     [0, 40], [30, 40], [15, 55], [0, 40]
12                 ]
13             ]
14         ]
15     }
```

- *GeometryCollection*: Utilizado para descrever objetos com diferentes geometrias. Como dito, não possui a tag “coordinates”, mas nele está presente a tag “geometries” que é um array dos tipos descritos acima.

```
1      {
2          "type": "GeometryCollection",
3          "geometries": [
4              {
5                  "type": "Point",
6                  "coordinates": [0, 0]
7              },
8              {
9                  "type": "LineString",
10                 "coordinates": [
11                     [3, 3], [6, 6], [9, 9]
12                 ]
13             },
14             {
15                 "type": "Polygon",
16                 "coordinates": [
```

```

17         [[0, 40], [30, 40], [15, 55],
18         [0, 40]]
19     ]
20 }
21 ]
22 }
```

Há também outras regras que devem ser seguidas como, por exemplo, as figuras que ultrapassem seus antimeridianos, devem ser cortadas em duas partes e formar um único objeto capaz de representá-las.

#### 2.4.2.2 Feature e FeatureCollection

Há também outros dois tipos de objetos GeoJSON além dos descritos em 2.1.1, eles são denominados *Feature* e *FeatureCollection*.

- *Feature*: Possui 3 *tags* obrigatórias, a primeira seria *type*, em que o valor é “*Feature*”, a segunda é *geometry*, que seria um dos objetos geométricos descritos acima, a terceira *tag* é *properties*, seu valor é um objeto JSON.

```

1  {
2      "type": "Feature",
3      "geometry": {
4          "type": "Point",
5          "coordinates": [-23.229763, -45.884171]
6      },
7      "properties": {
8          "name": "McDonald's"
9      }
10 }
```

- *FeatureCollection*: Possui uma *tag* “*type*” onde o valor é “*FeatureCollection*” e uma *tag* “*features*”, que é um *array* de objetos “*Feature*”.

```

1  {
2      "type": "FeatureCollection",
3      "features": [
4          {
5              "type": "Feature",
```

```

6         "geometry": {
7             "type": "Multipoint",
8             "coordinates": [
9                 [-23.229763, -45.884171],
10                [-23.216760, -45.892938]
11            ]
12        },
13        "properties": {
14            "name": "McDonald's"
15        }
16    },
17    {
18        "type": "Feature",
19        "geometry": {
20            "type": "Polygon",
21            "coordinates": [
22                [
23                    [100.0, 0.0], [101.0, 0.0],
24                    [101.0, 1.0], [100.0, 1.0],
25                    [100.0, 0.0]
26                ]
27            ]
28        },
29        "properties": {
30            "prop0": "value0"
31        }
32    }
33 ]
34 }

```

#### 2.4.2.3 Foreign Members

Uma capacidade que aumenta a flexibilidade dos objetos JSON, é a possibilidade de adicionar *tags* não definidas na documentação do GeoJSON. Elas são definidas como “*Foreign Members*”. Vale ressaltar que por não serem pré-definidos, ao utilizá-los em diferentes implementações, é provável que ocorra falta de interoperabilidade.



#### 2.4.2.4 Compatibilidade com o PostgreSQL

O PostgreSQL é um motor de base de dados que a partir da extensão PostGIS é capaz de manipular dados espaciais e enviá-las ao cliente no formato de GeoJSON. O PostGIS contém mais de mil geofunções, dentre elas diferentes formas de indexar seus dados (MAKRIS et al., 2019 apud Schidmit et al.).

## 3 Trabalhos Relacionados

Nesse capítulo são apresentados trabalhos que utilizam GeoJSON na representação de dados espaciais.

### 3.1 Crismapp

O Crissmap é uma aplicação WebGIS 2.0 utilizada no gerenciamento de diferentes crises na República Tcheca, como incêndios e inundações. Apesar desse objetivo principal, a plataforma pode ser utilizada em outros cenários, em (NÉTEK; POHANKA; VOZENÍLEK, 2018), há o estudo de caso para seu uso na agricultura de precisão em plantações de beterraba sacarina. O Crismapp possibilita que os agricultores cadastrem diversos dados a respeito de suas plantações, como fotos, dados estatísticos e de espaciais, no formato GeoJSON (NÉTEK; POHANKA; VOZENÍLEK, 2018). Ressalta-se que, assim como o Pauliceia 2.0, os dados de plantações são alterados continuamente ao decorrer do tempo.

### 3.2 Projeto do Embrapa

Em (CRUZ; SILVA; MACÁRIO, 2014), uma aplicação web desenvolvida pela Embrapa, faz uso do GeoJSON para o armazenamento de dados da região do Pantanal brasileiro. Esses dados são utilizados em pesquisas para a avaliação de riscos climáticos, caracterização e monitoramento de recursos naturais e outras atividades que interferem nas plantações.

### 3.3 Aplicação para o controle de tráfego

Uma aplicação web para o gerenciamento de tráfego na cidade de Surabaya, Indonésia, foi desenvolvido pela Sekolah Tinggi Teknik Surabaya. O projeto visa registrar digitalmente propriedades das estradas, como luzes, placas e sinalizações no asfalto, pois esses objetos são constantemente vandalizados ou roubados. O formato de dados utilizado no projeto também é o GeoJSON, que, segundo os desenvolvedores, foi vantajoso pois ele é capaz de lidar com estruturas de dados hierárquicas e diferentes figuras geométricas (GUNAWAN; FERDINANDUS; SETIAWAN, 2016).

## 3.4 Dados do OpenStreetMap em GeoJSON

No site do OSM, os dados estão disponíveis para serem exportados em alguns formatos, que de acordo com o OpenStreetMap Wiki os principais são: OSM XML (*OpenStreetMap eXtensible Markup Language*), PBF Format (*Protocolbuffer Binary Format*), o5m e Level0L. Para obtê-los no formato GeoJSON pode-se utilizar conversores desses formatos ou, então, outros projetos que exportam os dados diretamente na extensão desejada. Dentre os projetos que fazem essa conversão está o Overpass Turbo e o Java OpenStreetMap (JOSM).

### 3.4.1 Overpass Turbo

O Overpass Turbo é uma ferramenta web que faz mineração dos dados do OpenStreetMap. O resultado das buscas pode ser visualizado na seção “Mapa” de forma ilustrada, ou, então, na seção “Arquivo” que apresenta os valores resultantes em formato JSON. Para exportar os dados, os usuários possuem diferentes formatos para escolher, entre os quais estão PNG, como na Figura 17, GeoJSON e JSON. A consulta para a geração da Figura 17 é a de universidades na área da figura, que é parte do Parque Tecnológico de São José dos Campos - SP. Para a mesma pesquisa, o resultado exportado em GeoJSON está presente no Anexo B.

Figura 17 – Imagem exportada pelo Overpass Turbo



Fonte: Overpass Turbo, 2021

O GeoJSON do Anexo B contém um elemento do tipo *FeatureCollection*, que possui três elementos do tipo *Feature*, no qual o primeiro representa a UNIFESP e os outros dois a FATEC. As características das palavras-chaves das universidades estão presentes dentro da tag “*properties*”.

### 3.4.2 JOSM

O JOSM é um editor *desktop* em Java para dados do OpenStreetMap inicialmente desenvolvido por Immanuel Scholz. Para a mesma região do Parque Tecnológico de São José dos Campos - SP referenciada na Figura 17 e no Anexo B, ele exportou o GeoJSON do Anexo C. Nele, também há um elemento do tipo *FeatureCollection* que contém, diferentemente do arquivo gerado pelo Overpass Turbo, mais que 3 elementos do tipo *Feature*. Ainda assim, os dados das universidades são representados por três elementos *Feature*, no qual dois representam a FATEC e um a UNIFESP. Igualmente, as características das *Features* estão na tag “*properties*”.

Comparando os dados dos Anexos A, B, e C, referentes às universidades da região observada, temos que todas as palavras-chave do OpenStreetMap, que estão nos marcadores *tag* foram exportadas para GeoJSON na tag “*properties*”, como pode ser observado nas Figuras 18, 19, e 20.

Figura 18 – Dados da UNIFESP exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda)

1002	<nd ref="6591791896"/>	7	{	2176	{
1003	<nd ref="5381985244"/>	8	"type": "Feature",	2177	"type": "Feature",
1004	<tag k="addr:city" v="São José dos Campos"/>	9	"properties": {	2178	"properties": {
1005	<tag k="addr:housenumber" v="1201"/>	10	"@id": "way/558122127",	2179	"addr:city": "São José dos Campos",
1006	<tag k="addr:postcode" v="12247-014"/>	11	"addr:city": "São José dos Campos",	2180	"addr:housenumber": "1201",
1007	<tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>	12	"addr:housenumber": "1201",	2181	"addr:postcode": "12247-014",
1008	<tag k="addr:suburb" v="Eugênio de Mello"/>	13	"addr:postcode": "12247-014",	2182	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",
1009	<tag k="amenity" v="university"/>	14	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",	2183	"addr:suburb": "Eugênio de Mello",
1010	<tag k="email" v="secretaria.sjc@unifesp.br"/>	15	"addr:suburb": "Eugênio de Mello",	2184	"amenity": "university",
1011	<tag k="internet access" v="yes"/>	16	"amenity": "university",	2185	"email": "secretaria.sjc@unifesp.br",
1012	<tag k="internet access:fee" v="no"/>	17	"email": "secretaria.sjc@unifesp.br",	2186	"internet access": "yes",
1013	<tag k="name" v="UNIFESP"/>	18	"internet access": "yes",	2187	"internet access:fee": "no",
1014	<tag k="operator" v="Universidade Federal de São Paulo"/>	19	"internet access:fee": "no",	2188	"name": "UNIFESP",
1015	<tag k="operator:type" v="public"/>	20	"name": "UNIFESP",	2189	"operator": "Universidade Federal de São Paulo",
1016	<tag k="phone" v="+55 12 3924 9500"/>	21	"operator": "Universidade Federal de São Paulo",	2190	"operator:type": "public",
1017	<tag k="website" v="http://www.sjc.unifesp.br"/>	22	"operator:type": "public",	2191	"phone": "+55 12 3924 9500",
1018	<tag k="wikidata" v="Q4384447"/>	23	"phone": "+55 12 3924 9500",	2192	"website": "http://www.sjc.unifesp.br/",
1019	<tag k="wikipedia" v="en:Federal University of São Paulo"/>	24	"website": "http://www.sjc.unifesp.br/",	2193	"wikidata": "Q4384447",
1020	</way>	25	"wikidata": "Q4384447",	2194	"wikipedia": "en:Federal University of São Paulo",
1021	<way id="699134582" visible="true" version="2" changeset="94836610" timestamp="2020-11-26T11:36:49Z" user="JacksonWard" uid="9535075">	26	"wikipedia": "en:Federal University of São Paulo",	2195	},
1022		27	},	2196	"geometry": {
		28	"geometry": {	2197	"type": "Polygon",
		29	"type": "Polygon",	2198	"coordinates": [
		30	"coordinates": [	2199	[
		31		2200	

Fonte: O Autor, 2021

Figura 19 – Dados da FATEC exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda)

1588	<nd ref="6591878152"/>	137	{	2655	{
1589	<nd ref="6591835562"/>	138	"type": "Feature",	2640	"type": "Feature",
1590	<tag k="addr:city" v="São José dos Campos"/>	139	"properties": {	2641	"properties": {
1591	<tag k="addr:housenumber" v="1350"/>	140	"@id": "way/701927890",	2642	"addr:city": "São José dos Campos",
1592	<tag k="addr:postcode" v="12247-014"/>	141	"addr:city": "São José dos Campos",	2643	"addr:housenumber": "1350",
1593	<tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>	142	"addr:housenumber": "1350",	2644	"addr:postcode": "12247-014",
1594	<tag k="addr:suburb" v="Eugênio de Mello"/>	143	"addr:postcode": "12247-014",	2645	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",
1595	<tag k="amenity" v="university"/>	144	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",	2646	"addr:suburb": "Eugênio de Mello",
1596	<tag k="email" v="secretaria.sjc@fatec.sp.gov.br"/>	145	"addr:suburb": "Eugênio de Mello",	2647	"amenity": "university",
1597	<tag k="name" v="FATEC - SJC"/>	146	"amenity": "university",	2648	"email": "secretaria.sjc@fatec.sp.gov.br",
1598	<tag k="operator" v="FATEC"/>	147	"email": "secretaria.sjc@fatec.sp.gov.br",	2650	"name": "FATEC - SJC",
1599	<tag k="operator:type" v="public"/>	148	"name": "FATEC - SJC",	2651	"operator": "FATEC",
1600	<tag k="phone" v="+55 12 3905 2423"/>	149	"operator": "FATEC",	2652	"operator:type": "public",
1601	<tag k="website" v="http://www.fatecsjc.edu.br"/>	150	"operator:type": "public",	2653	"phone": "+55 12 3905 2423",
1602	<tag k="wikidata" v="Q7665663"/>	151	"phone": "+55 12 3905 2423",	2654	"website": "http://www.fatecsjc.edu.br/",
1603	<tag k="wikipedia" v="en:São Paulo State Technological College"/>	152	"website": "http://www.fatecsjc.edu.br/",	2655	"wikidata": "Q7665663",
1604	</way>	153	"wikidata": "Q7665663",	2656	"wikipedia": "en:São Paulo State Technological College"
1605		154	"wikipedia": "en:São Paulo State Technological College"	2657	},
		155	},	2658	"geometry": {
		156	"geometry": {	2659	"type": "Polygon",
		157	"type": "Polygon",	2660	"coordinates": [
		158	"coordinates": [	2661	[

Fonte: O Autor, 2021

Figura 20 – Dados da FATEC exportados pelo OpenStreetMap (direita), Overpass Turbo (centro) e JOSM (esquerda)

611	<node id="6725323595" visible="true" version="1" changeset="73517757" timestamp="2019-08-19T23:59:12Z" user="Geovanny Avelar" uid="10236930" lat="-23.1620863" lon="-45.7953990"/>	201	{	4878	{
612	<tag k="addr:city" v="São José dos Campos"/>	202	"type": "Feature",	4879	"type": "Feature",
613	<tag k="addr:postcode" v="12247-014"/>	203	"properties": {	4880	"properties": {
614	<tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>	204	"@id": "node/6725323595",	4881	"addr:city": "São José dos Campos",
615	<tag k="addr:suburb" v="Eugênio de Mello"/>	205	"addr:city": "São José dos Campos",	4882	"addr:postcode": "12247-014",
616	<tag k="amenity" v="university"/>	206	"addr:postcode": "12247-014",	4883	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",
617	<tag k="internet_access" v="yes"/>	207	"addr:street": "Avenida Cesare Monsueto Giulio Lattes",	4884	"addr:suburb": "Eugênio de Mello",
618	<tag k="internet_access:fee" v="no"/>	208	"addr:suburb": "Eugênio de Mello",	4885	"amenity": "university",
619	<tag k="name" v="Faculdade de Tecnologia de São José dos Campos"/>	209	"amenity": "university",	4886	"internet_access": "yes",
620	<tag k="phone" v="+55 (12) 3905-2423"/>	210	"internet_access": "yes",	4887	"internet_access:fee": "no",
621	<tag k="website" v="https://fatecsjc-prd.azurewebsites.net"/>	211	"internet_access:fee": "no",	4888	"name": "Faculdade de Tecnologia de São José dos Campos",
622	</node>	212	"name": "Faculdade de Tecnologia de São José dos Campos",	4889	"phone": "+55 (12) 3905-2423",
		213	"phone": "+55 (12) 3905-2423",	4890	"website": "https://fatecsjc-prd.azurewebsites.net/"
		214	"website": "https://fatecsjc-prd.azurewebsites.net/"	4891	},
		215	},	4892	"geometry": {
		216	"geometry": {	4893	"type": "Point"
		217	"type": "Point"	4894	"coordinates": [
		218	"coordinates": [	4895	-45.7953990000,
		219	-45.795399,	4896	-23.16208630000
		220	-23.1620863	4897	]
				4898	}
				4899	}

Fonte: O Autor, 2021



## 4 GeoJSON para Contexto do Pauliceia 2.0

### 4.1 Proposta de estrutura

Em ambos os arquivos GeoJSON gerados pelo Overpass Turbo (Anexo B) e pelo JOSM (Anexo C), todas as palavras-chaves do estão presentes na *tag* “*properties*” e as outras características estão no mesmo nível dessa *tag*. Assim, tendo em vista esses modelos, podemos gerar o GeoJSON dos dados do Pauliceia 2.0 seguindo uma estrutura similar, no qual os dados que representam as características dos objetos, semelhante ao do conceito de palavra-chave do OSM, estejam dentro da *tag* “*properties*” e todas as demais permanecem como *tags* de mesmo nível. No banco de dados do Pauliceia 2.0, as palavras-chaves dos objetos são as colunas da tabelas de *feature* e a tabela *keyword* são palavras-chaves da camada.

Ainda em consideração aos modelos, temos que mesmo que dois objetos ocupem a mesma área, devem ser representados como elementos distintos, com geometria e características distintas. Dessa maneira, podemos resumir a estrutura GeoJSON a ser utilizado como:

```
1      {
2          "type": "FeatureCollection",
3          "features": [
4              {
5                  "type": "Feature",
6                  "properties": {
7                      <palavra-chave 1>: <valor 1>,
8                      <palavra-chave 2>: <valor 2>
9                  },
10                 "geometry": {
11                     "type": <geometria>,
12                     "coordinates": [
13                         <coordenada 1>, <coordenada 2>
14                     ]
15                 },
16                 <característica objeto>: <valor característica>
17             }
18         ]
```

## 4.2 Exportação de dados

Para gerar arquivos GeoJSON seguindo a estrutura proposta, desenvolveu-se um *script* em Python 3. Ao executá-lo, é apresentada uma lista das camadas presentes no banco de dados do Pauliceia 2.0, o arquivo GeoJSON será gerado a partir dos dados de tabela referente à camada escolhida. Assim, o usuário deverá selecionar qual camada deseja exportar e clicar no botão "OK". A Figura 21 apresenta a interface gráfica do *script* e no Anexo D está seu código-fonte.

Figura 21 – Interface gráfica do *script* em Python 3



Fonte: O Autor, 2021

### 4.2.1 Resultados da exportação

Como exemplo de teste, foi escolhida a tabela `cinemas_de_sao_paulo`, que segundo a descrição presente na tabela *layer* é a camada de "Cinemas do centro da cidade de São Paulo em 1931". Suas colunas são as detalhadas na Figura 22.

O GeoJSON criado está presente no Anexo E e parte dele está presente na Figura 23. Nela podemos verificar que todos os campos que não exprimem significado para outra plataforma não estão presentes nos resultados. Portanto os campos *id*, *changeset\_id* e *version* são os únicos da tabela da camada que não estão no GeoJSON criado.

A partir desse resultado, inseriu-se o objeto da Figura 23 na plataforma `geojson.io`. A plataforma é um editor de GeoJSON online onde, a partir de um arquivo nesse formato, faz a sua representação num mapa. As Figuras 24 e 25 exemplificam como a plataforma representa respectivamente os valores contidos nas tags *"properties"* e *"coordinates"*.

Já utilizando todo o arquivo do Anexo E, e não somente um de seus objetos, fazendo conexão com a API do Google Maps, temos como resultado a representação de cada geometria como um *pin* no mapa, como pode ser visto na Figura 26.

Figura 22 – Colunas da tabela cinemas\_de\_sao\_paulo

Nome da coluna	#	Tipo de dados
id	1	serial
geom	2	geometry
rua	3	varchar
numero	4	varchar
ano	5	varchar
nome	6	varchar
fonte	7	varchar
confiden	8	numeric
version	9	int4
changeset_id	10	int4

Fonte: O Autor, 2021

Figura 23 – GeoJSON gerado a partir da tabela cinemas\_de\_sao\_paulo

```

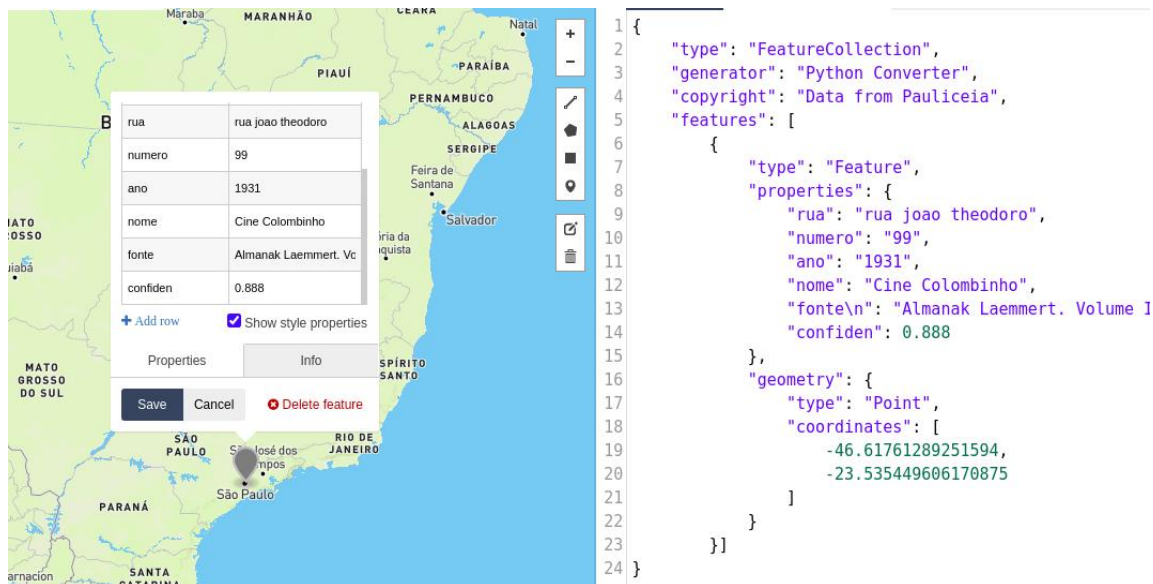
1  {
2    "type": "FeatureCollection",
3    "generator": "Python Converter",
4    "copyright": "Data from Pauliceia",
5    "features": [
6      {
7        "type": "Feature",
8        "properties": {
9          "rua": "rua joao theodoro",
10         "numero": "99",
11         "ano": "1931",
12         "nome": "Cine Colombinho",
13         "fonte\n": "Almanak Laemmert. Volume II, p. 162",
14         "confiden": 0.888
15       },
16       "geometry": {
17         "type": "Point",
18         "coordinates": [
19           -46.61761289251594,
20           -23.535449606170875
21         ]
22       }
23     },

```

Fonte: O Autor, 2021

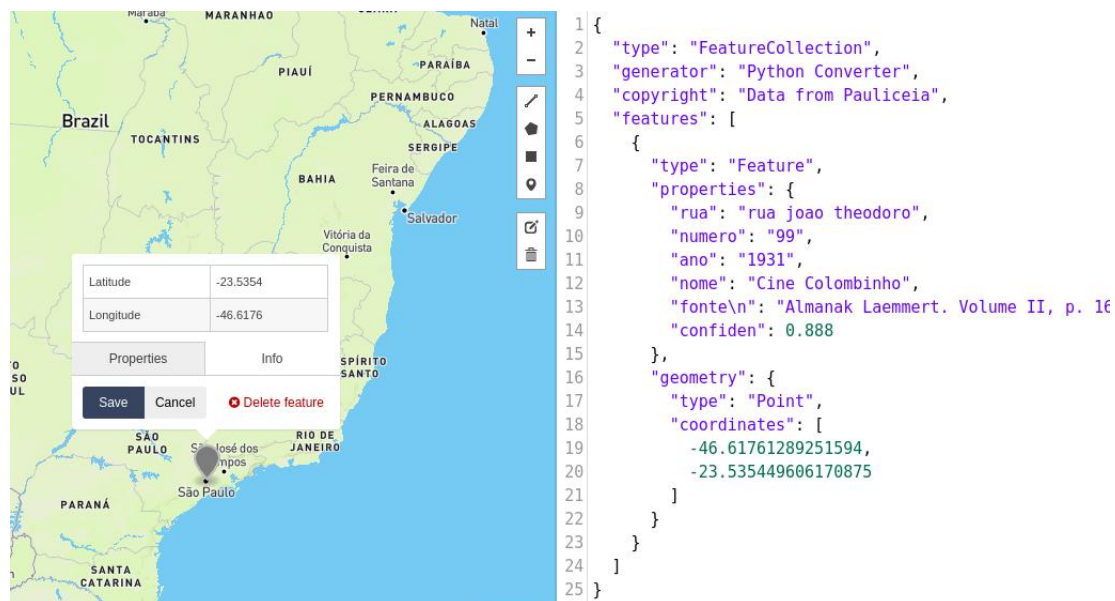


Figura 24 – Representação da tag "properties" no geojson.io



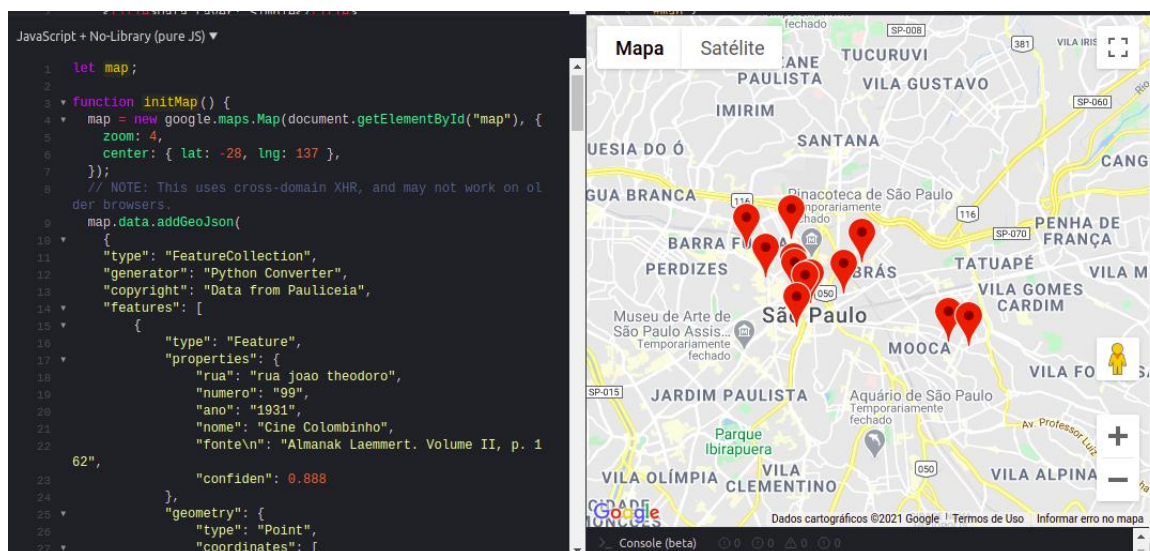
Fonte: O Autor, 2021

Figura 25 – Representação da tag "coordinates" no geojson.io



Fonte: O Autor, 2021

Figura 26 – Representação do Anexo E pelo Google Maps



Fonte: O Autor, 2021

## 5 Conclusão

A partir do estudo realizado na elaboração desse trabalho, notou-se a importância de manter os objetos do projeto Pauliceia 2.0 no modelo espaço-temporal, devido aos fenômenos temporais e físicos sobre eles. Atualmente, o formato de dados utilizado para exportação é o *shapefile*, porém com a crescente compatibilidade com outras plataformas, o formato GeoJSON, também pode ser utilizado para esse fim.

Esse estudo buscou compreender o formato e investigar a possibilidade de uso dele no Pauliceia 2.0. Ele se mostrou capaz de armazenar as diferentes características dos objetos presentes no projeto, tendo campos específicos para o tipo de objeto, sua geometria, coordenadas e propriedades.

As camadas do projeto além de representar diferentes contextos, como os cinemas e enchentes, também são específicas para intervalos de tempo, como o próprio nome revela em *casas\_de\_tolerancia\_1932\_a\_1955*. No *script* em python, caso esses campos existam na tabela, estarão presente na *tag properties*. Como no projeto esses campos não são obrigatórios, nem existe em outra tabela que armazene para todas as tabelas *features*, consequentemente, não será em todos os casos que existirão os valores temporais para o GeoJSON exportado.

Futuramente, pode-se desenvolver a exportação dos dados utilizando mais de uma camada, ou, também, selecionar uma determinada área e unificar em um mesmo arquivo todos os dados das diferentes camadas referentes ao local requisitado e, por último, adicionar esse formato de exportação para o Pauliceia 2.0.

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# Anexos

# ANEXO A – Arquivo osm gerado pelo OpenStreetMap

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <osm version="0.6" generator="CGImap 0.8.3 (558809 spike-07.openstreetmap.org)" copyright="
  OpenStreetMap and contributors" attribution="http://www.openstreetmap.org/copyright" license=
    "http://opendatacommons.org/licenses/odbl/1.0/">
3 <bounds minlat="-23.1647800" minlon="-45.7962000" maxlat="-23.1613900" maxlon="-45.7928800"/>
4 <node id="1457897720" visible="true" version="3" changeset="91428372" timestamp="2020-09-24T10
  :50:46Z" user="AlaskanWay" uid="10529216" lat="-23.1719646" lon="-45.7992603"/>
5 <node id="1650296910" visible="true" version="1" changeset="10808136" timestamp="2012-02-27T12
  :45:50Z" user="Cadu Leite" uid="467330" lat="-23.1589244" lon="-45.7928514"/>
6 <node id="1650296916" visible="true" version="1" changeset="10808136" timestamp="2012-02-27T12
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7 <node id="1650296927" visible="true" version="1" changeset="10808136" timestamp="2012-02-27T12
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8 <node id="1762134385" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619452" lon="-45.7960591"/>
9 <node id="1762134388" visible="true" version="1" changeset="11671314" timestamp="2012-05-22T12
  :56:10Z" user="Wendell Silva" uid="686900" lat="-23.1623495" lon="-45.7954308"/>
10 <node id="1762134390" visible="true" version="2" changeset="32102933" timestamp="2015-06-20T18
  :55:49Z" user="dbusse" uid="149876" lat="-23.1618294" lon="-45.7951869"/>
11 <node id="1762134399" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620427" lon="-45.7960576"/>
12 <node id="1762134401" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619639" lon="-45.7957733"/>
13 <node id="1762134406" visible="true" version="2" changeset="32102933" timestamp="2015-06-20T18
  :55:49Z" user="dbusse" uid="149876" lat="-23.1616205" lon="-45.7952488">
14 <tag k="highway" v="turning_circle"/>
15 </node>
16 <node id="1762134407" visible="true" version="6" changeset="95030146" timestamp="2020-11-30T08
  :58:09Z" user="JacksonWard" uid="9535075" lat="-23.1645485" lon="-45.7957899"/>
17 <node id="1762134410" visible="true" version="3" changeset="80581847" timestamp="2020-02-05T10
  :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1628848" lon="-45.7942502"/>
18 <node id="1762134413" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627724" lon="-45.7953837"/>
19 <node id="1762134418" visible="true" version="4" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1624726" lon="-45.7946316"/>
20 <node id="1762134422" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
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21 <node id="1762134425" visible="true" version="5" changeset="80581847" timestamp="2020-02-05T10
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22 <node id="1762134429" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
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23 <node id="1762134431" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
  :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618811" lon="-45.7959394"/>
24 <node id="1762134432" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
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25 <node id="3014182663" visible="true" version="4" changeset="80581847" timestamp="2020-02-05T10
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27 <node id="3014182667" visible="true" version="3" changeset="71520463" timestamp="2019-06-22T23
    :38:07Z" user="Nathan Cruz" uid="2268937" lat="-23.1647548" lon="-45.7931306"/>
28 <node id="3025746170" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619926" lon="-45.7962110"/>
29 <node id="3025746171" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619291" lon="-45.7956660"/>
30 <node id="3025746172" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626290" lon="-45.7950115"/>
31 <node id="3025746173" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1628610" lon="-45.7953051"/>
32 <node id="3025746174" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1628001" lon="-45.7955204"/>
33 <node id="3047498508" visible="true" version="3" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1616114" lon="-45.7925848"/>
34 <node id="3047498509" visible="true" version="2" changeset="48892797" timestamp="2017-05-22T16
    :05:07Z" user="Dancandido" uid="636539" lat="-23.1613382" lon="-45.7923595"/>
35 <node id="3047498510" visible="true" version="3" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1610473" lon="-45.7922057"/>
36 <node id="3047498511" visible="true" version="3" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1607528" lon="-45.7920526"/>
37 <node id="3047498512" visible="true" version="3" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1605351" lon="-45.7918014"/>
38 <node id="3047498513" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1604267" lon="-45.7916563"/>
39 <node id="3047498514" visible="true" version="1" changeset="25075525" timestamp="2014-08-28T14
    :52:39Z" user="fumachi" uid="2295863" lat="-23.1601918" lon="-45.7914433"/>
40 <node id="3047498515" visible="true" version="2" changeset="48892797" timestamp="2017-05-22T16
    :05:07Z" user="Dancandido" uid="636539" lat="-23.1599552" lon="-45.7913658"/>
41 <node id="3047498516" visible="true" version="2" changeset="48892797" timestamp="2017-05-22T16
    :05:07Z" user="Dancandido" uid="636539" lat="-23.1596992" lon="-45.7913321"/>
42 <node id="3047498517" visible="true" version="2" changeset="48892797" timestamp="2017-05-22T16
    :05:07Z" user="Dancandido" uid="636539" lat="-23.1592455" lon="-45.7913227"/>
43 <node id="3047498518" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1588164" lon="-45.7912792"/>
44 <node id="3047498519" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
    :21:07Z" user="Cadu Leite" uid="467330" lat="-23.1586485" lon="-45.7911791"/>
45 <node id="3047498520" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
    :23:30Z" user="Cadu Leite" uid="467330" lat="-23.1584707" lon="-45.7910065"/>
46 <node id="3047498521" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
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47 <node id="3047498522" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
    :23:30Z" user="Cadu Leite" uid="467330" lat="-23.1581308" lon="-45.7899953"/>
48 <node id="3047498523" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
    :23:30Z" user="Cadu Leite" uid="467330" lat="-23.1581492" lon="-45.7892953"/>
49 <node id="3047498524" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
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50 <node id="3047498525" visible="true" version="1" changeset="25075525" timestamp="2014-08-28T14
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51 <node id="3047498526" visible="true" version="2" changeset="67240045" timestamp="2019-02-15T21
    :23:30Z" user="Cadu Leite" uid="467330" lat="-23.1584266" lon="-45.7882703"/>
52 <node id="3047498528" visible="true" version="4" changeset="94818942" timestamp="2020-11-26T07
    :10:57Z" user="JacksonWard" uid="9535075" lat="-23.1590200" lon="-45.7876955"/>
53 <node id="3384619353" visible="true" version="2" changeset="91428372" timestamp="2020-09-24T10
    :50:46Z" user="AlaskanWay" uid="10529216" lat="-23.1696462" lon="-45.7943141"/>
54 <node id="4585930483" visible="true" version="2" changeset="86053188" timestamp="2020-06-01T15
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56 <node id="4870135470" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
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57 <node id="4870135471" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
:02:11Z" user="Dancandido" uid="636539" lat="-23.1622312" lon="-45.7953751"/>
58 <node id="4870135472" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
:02:11Z" user="Dancandido" uid="636539" lat="-23.1620809" lon="-45.7951741"/>
59 <node id="4870135473" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
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60 <node id="4870135474" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
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61 <node id="4870135475" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
:02:11Z" user="Dancandido" uid="636539" lat="-23.1621526" lon="-45.7951376"/>
62 <node id="4870135476" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
:02:12Z" user="Dancandido" uid="636539" lat="-23.1624618" lon="-45.7948387"/>
63 <node id="4870135477" visible="true" version="1" changeset="48892722" timestamp="2017-05-22T16
:02:12Z" user="Dancandido" uid="636539" lat="-23.1625992" lon="-45.7950069"/>
64 <node id="4870140412" visible="true" version="3" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1636944" lon="-45.7951128"/>
65 <node id="4870140413" visible="true" version="1" changeset="48892797" timestamp="2017-05-22T16
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66 <node id="4870140414" visible="true" version="2" changeset="95030146" timestamp="2020-11-30T08
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67 <node id="4870140415" visible="true" version="3" changeset="95030146" timestamp="2020-11-30T08
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68 <node id="4870140419" visible="true" version="1" changeset="48892797" timestamp="2017-05-22T16
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69 <node id="4870141423" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
:21:07Z" user="Cadu Leite" uid="467330" lat="-23.1602752" lon="-45.7915148"/>
70 <node id="4870153878" visible="true" version="4" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937" lat="-23.1643029" lon="-45.7932500"/>
71 <node id="4870153879" visible="true" version="4" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937" lat="-23.1640150" lon="-45.7929275"/>
72 <node id="4870153880" visible="true" version="4" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937" lat="-23.1631896" lon="-45.7937994"/>
73 <node id="4870156911" visible="true" version="4" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1627773" lon="-45.7936370"/>
74 <node id="4870156912" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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75 <node id="4870156913" visible="true" version="2" changeset="55818693" timestamp="2018-01-28T01
:28:32Z" user="T8Nogueira" uid="7155848" lat="-23.1639224" lon="-45.7921072"/>
76 <node id="4870156914" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
:10:08Z" user="Dancandido" uid="636539" lat="-23.1631186" lon="-45.7915135"/>
77 <node id="4870156915" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
:10:08Z" user="Dancandido" uid="636539" lat="-23.1632747" lon="-45.7905933"/>
78 <node id="4870156916" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
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79 <node id="4870156917" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
:10:08Z" user="Dancandido" uid="636539" lat="-23.1637173" lon="-45.7886821"/>
80 <node id="4870156918" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
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81 <node id="4870156919" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
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82 <node id="4870156920" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
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83 <node id="4870158421" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
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85 <node id="4870158423" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1624938" lon="-45.7858933"/>
86 <node id="4870158424" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1625589" lon="-45.7868842"/>
87 <node id="4870158425" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1624157" lon="-45.7872523"/>
88 <node id="4870158426" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1620122" lon="-45.7873373"/>
89 <node id="4870158427" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1617779" lon="-45.7877903"/>
90 <node id="4870158428" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1616348" lon="-45.7886821"/>
91 <node id="4870158429" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1616200" lon="-45.7890570"/>
92 <node id="4870158430" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1614258" lon="-45.7889955"/>
93 <node id="4870158431" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1607821" lon="-45.7883786"/>
94 <node id="4870158432" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1605783" lon="-45.7884878"/>
95 <node id="4870158433" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1605545" lon="-45.7886821"/>
96 <node id="4870158434" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1606586" lon="-45.7889228"/>
97 <node id="4870158435" visible="true" version="1" changeset="48892920" timestamp="2017-05-22T16
    :10:08Z" user="Dancandido" uid="636539" lat="-23.1609449" lon="-45.7892767"/>
98 <node id="4870158436" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1612394" lon="-45.7896675"/>
99 <node id="4870158437" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1613366" lon="-45.7899270"/>
100 <node id="4870158438" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1614168" lon="-45.7901482"/>
101 <node id="4870158439" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1608880" lon="-45.7898907"/>
102 <node id="4870158440" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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103 <node id="4870158441" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1591227" lon="-45.7895561"/>
104 <node id="4870158442" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
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105 <node id="4870158443" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
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106 <node id="4870158444" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1589647" lon="-45.7912229"/>
107 <node id="4870158445" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1595039" lon="-45.7912384"/>
108 <node id="4870158446" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1601500" lon="-45.7912804"/>
109 <node id="4870158447" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1603273" lon="-45.7913990"/>
110 <node id="4870158448" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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111 <node id="4870158449" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1615031" lon="-45.7923899"/>
112 <node id="4870158450" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
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113 <node id="4870158451" visible="true" version="3" changeset="80582218" timestamp="2020-02-05T10
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114 <node id="4870159623" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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115 <node id="4870159624" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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117 <node id="4870159626" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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118 <node id="4870159627" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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121 <node id="4870159630" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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122 <node id="4870159631" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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123 <node id="4870159632" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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124 <node id="4870159633" visible="true" version="1" changeset="48892931" timestamp="2017-05-22T16
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125 <node id="4897755108" visible="true" version="2" changeset="56013817" timestamp="2018-02-03T00
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126 <node id="4897755109" visible="true" version="2" changeset="56013817" timestamp="2018-02-03T00
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127 <node id="4897755110" visible="true" version="2" changeset="56013817" timestamp="2018-02-03T00
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130 <node id="4897755113" visible="true" version="1" changeset="49276357" timestamp="2017-06-05T16
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131 <node id="4897755114" visible="true" version="1" changeset="49276357" timestamp="2017-06-05T16
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132 <node id="4897755115" visible="true" version="2" changeset="54363073" timestamp="2017-12-05T12
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133 <node id="4897755116" visible="true" version="3" changeset="71520463" timestamp="2019-06-22T23
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134 <node id="4897755117" visible="true" version="3" changeset="71520463" timestamp="2019-06-22T23
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135 <node id="5265685443" visible="true" version="2" changeset="95030146" timestamp="2020-11-30T08
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136 <node id="5265685448" visible="true" version="2" changeset="95030146" timestamp="2020-11-30T08
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137 <node id="5367205054" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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138 <node id="5367205055" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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139 <node id="5367205056" visible="true" version="1" changeset="55818693" timestamp="2018-01-28T01
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140 <node id="5367205057" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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141 <node id="5367205058" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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143 <node id="5381985234" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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144 <node id="5381985235" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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145 <node id="5381985236" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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146 <node id="5381985237" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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147 <node id="5381985238" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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148 <node id="5381985239" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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149 <node id="5381985241" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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150 <node id="5381985242" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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151 <node id="5381985243" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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152 <node id="5381985244" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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153 <node id="5381985245" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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154 <node id="5381985246" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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155 <node id="5381985247" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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156 <node id="5381985248" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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157 <node id="5381985249" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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158 <node id="5381985250" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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159 <node id="5381985251" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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160 <node id="5381985252" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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161 <node id="5381985253" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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162 <node id="5381985257" visible="true" version="1" changeset="56013817" timestamp="2018-02-03T00
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163 <node id="5709317332" visible="true" version="1" changeset="60051420" timestamp="2018-06-21T17
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164 <node id="5709317339" visible="true" version="1" changeset="60051420" timestamp="2018-06-21T17
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165 <node id="5709463383" visible="true" version="1" changeset="60053783" timestamp="2018-06-21T19
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166 <node id="5762231378" visible="true" version="2" changeset="71520463" timestamp="2019-06-22T23
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167 <tag k="bench" v="yes"/>
168 <tag k="bus" v="yes"/>
169 <tag k="highway" v="bus_stop"/>
170 <tag k="public_transport" v="platform"/>
171 <tag k="shelter" v="yes"/>
172 </node>
173 <node id="5762263256" visible="true" version="1" changeset="60739204" timestamp="2018-07-15T19
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175 <tag k="bus" v="yes"/>
176 <tag k="highway" v="bus_stop"/>
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178 <tag k="shelter" v="yes"/>
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187 <node id="6281736654" visible="true" version="1" changeset="67240045" timestamp="2019-02-15T21
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188 <node id="6281736655" visible="true" version="1" changeset="67240045" timestamp="2019-02-15T21
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189 <node id="6565242749" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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190 <node id="6565242750" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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191 <node id="6565242751" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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192 <node id="6565242752" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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193 <node id="6565242753" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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194 <node id="6565242754" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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195 <node id="6565242755" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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196 <node id="6565242756" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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197 <node id="6565242757" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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198 <node id="6565242758" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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199 <node id="6565242759" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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200 <node id="6565242760" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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201 <node id="6565242761" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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202 <node id="6565242762" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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203 <node id="6565242763" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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204 <node id="6565242764" visible="true" version="2" changeset="94818942" timestamp="2020-11-26T07
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205 <node id="6565242765" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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206 <node id="6565242766" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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207 <node id="6565242767" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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208 <node id="6565242768" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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211 <node id="6565242771" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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212 <node id="6565242772" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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213 <node id="6565242773" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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214 <node id="6565242775" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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215 <node id="6565242776" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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216 <node id="6565242777" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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217 <node id="6565242778" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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218 <node id="6565242779" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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219 <node id="6565242780" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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220 <node id="6565242781" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10  
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221 <node id="6565242782" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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222 <node id="6565242783" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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223 <node id="6565242784" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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224 <node id="6565259685" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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225 <node id="6565259686" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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226 <node id="6565259687" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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227 <node id="6565259688" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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228 <node id="6565259689" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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229 <node id="6565259690" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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230 <node id="6565259691" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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231 <node id="6565259692" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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232 <node id="6565259693" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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233 <node id="6565259694" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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234 <node id="6565259695" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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236 <node id="6565259697" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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237 <node id="6565259698" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23  
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239 <node id="6565259700" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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240 <node id="6565259701" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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242 <node id="6565259703" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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243 <node id="6565259704" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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244 <tag k="barrier" v="gate"/>
245 </node>
246 <node id="6565259705" visible="true" version="2" changeset="80582218" timestamp="2020-02-05T10
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247 <node id="6565259706" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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248 <node id="6565259707" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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249 <node id="6565259708" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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250 <node id="6565259709" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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251 <node id="6565259710" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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252 <node id="6565259711" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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253 <node id="6565259712" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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254 <node id="6565259713" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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255 <node id="6565259714" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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256 <node id="6565259715" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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257 <node id="6565259716" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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258 <node id="6565259717" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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259 <node id="6565259718" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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260 <node id="6565259719" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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261 <node id="6565259720" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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262 <node id="6565259721" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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263 <node id="6565259722" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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264 <node id="6565259723" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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265 <node id="6565259724" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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266 <node id="6565259725" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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267 <node id="6565259726" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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269 <node id="6565259789" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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270 <tag k="barrier" v="gate"/>
271 </node>
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273 <node id="6565259791" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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274 <node id="6565259792" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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275 <node id="6565259793" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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276 <node id="6565259794" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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277 <node id="6565259795" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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278 <node id="6565259796" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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279 <node id="6565259797" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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280 <node id="6565259798" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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281 <node id="6565259799" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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282 <node id="6565259800" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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283 <node id="6565259801" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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284 <node id="6565259802" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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285 <node id="6565259803" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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286 <node id="6565259804" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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287 <node id="6565259805" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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288 <node id="6565259806" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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289 <node id="6565259807" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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290 <node id="6565259808" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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291 <node id="6565259809" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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292 <node id="6565259810" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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293 <node id="6565259811" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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294 <node id="6565259812" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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295 <node id="6565259813" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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296 <node id="6565259814" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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297 <node id="6565259815" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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299 <node id="6565259817" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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300 <node id="6565259818" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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301 <node id="6565259822" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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302 <node id="6565259823" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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303 <node id="6565259824" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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304 <node id="6565259825" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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305 <node id="6565259826" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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306 <node id="6565259827" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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307 <node id="6565259828" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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308 <node id="6565259829" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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309 <node id="6565259830" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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310 <node id="6565259831" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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312 <node id="6565259833" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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313 <node id="6565259834" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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314 <node id="6565259835" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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315 <node id="6565259836" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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316 <node id="6565259837" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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317 <node id="6565259838" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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318 <node id="6565259839" visible="true" version="2" changeset="95038201" timestamp="2020-11-30T10
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319 <node id="6565259840" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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320 <node id="6565259841" visible="true" version="2" changeset="95038201" timestamp="2020-11-30T10
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321 <node id="6565259842" visible="true" version="2" changeset="95038201" timestamp="2020-11-30T10
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322 <node id="6565259843" visible="true" version="2" changeset="95038201" timestamp="2020-11-30T10
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323 <node id="6565259844" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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324 <node id="6565259845" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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325 <node id="6565259846" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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326 <node id="6565259847" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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327 <node id="6565259848" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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328 <node id="6565259853" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
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329 <node id="6565259859" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
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330 <node id="6565259863" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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331 <tag k="barrier" v="gate"/>
332 </node>
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334 <node id="6565259866" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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335 <node id="6565259867" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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336 <node id="6565259868" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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337 <node id="6565259869" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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338 <node id="6565259870" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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339 <node id="6565259871" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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340 <node id="6565259872" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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341 <node id="6565259873" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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342 <node id="6565259874" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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343 <node id="6565259875" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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344 <node id="6565259876" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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345 <node id="6565259877" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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346 <node id="6565259878" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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347 <node id="6565259879" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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348 <node id="6565259880" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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349 <node id="6565259881" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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350 <node id="6565259882" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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351 <node id="6565259883" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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352 <node id="6565259884" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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353 <node id="6565259885" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
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354 <node id="6565259886" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
    :38:07Z" user="Nathan Cruz" uid="2268937" lat="-23.1645801" lon="-45.7934440"/>
355 <node id="6591764247" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
    :55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1642745" lon="-45.7953657"/>
356 <node id="6591764248" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
    :55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1646171" lon="-45.7956028"/>
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[illegible]

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386 <node id="6591791724" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1654139" lon="-45.7950918"/>
387 <node id="6591791725" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1654382" lon="-45.7950726"/>
388 <node id="6591791726" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1654319" lon="-45.7950448"/>
389 <node id="6591791727" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1654046" lon="-45.7950353"/>
390 <node id="6591791728" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1653822" lon="-45.7950236"/>
391 <node id="6591791729" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1653539" lon="-45.7950045"/>
392 <node id="6591791730" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1653305" lon="-45.7949812"/>
393 <node id="6591791731" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1653101" lon="-45.7949621"/>
394 <node id="6591791732" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1652847" lon="-45.7949292"/>
395 <node id="6591791733" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1652584" lon="-45.7948932"/>
396 <node id="6591791734" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1652379" lon="-45.7948624"/>
397 <node id="6591791735" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1652106" lon="-45.7948200"/>
398 <node id="6591791736" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1651872" lon="-45.7947914"/>
399 <node id="6591791737" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1651609" lon="-45.7947628"/>
400 <node id="6591791738" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1651750" lon="-45.7947781"/>
401 <node id="6591791739" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1647278" lon="-45.7944504"/>
402 <node id="6591791740" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1647752" lon="-45.7944340"/>
403 <node id="6591791741" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1648089" lon="-45.7944299"/>
404 <node id="6591791742" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1648577" lon="-45.7944299"/>
405 <node id="6591791743" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649089" lon="-45.7944312"/>
406 <node id="6591791744" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649389" lon="-45.7944340"/>
407 <node id="6591791745" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649627" lon="-45.7944489"/>
408 <node id="6591791746" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649739" lon="-45.7944666"/>
409 <node id="6591791747" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1650033" lon="-45.7945218"/>
410 <node id="6591791804" visible="true" version="2" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1650013" lon="-45.7956400"/>
411 <node id="6591791805" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1652285" lon="-45.7951682"/>
412 <node id="6591791806" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649523" lon="-45.7946366"/>
413 <node id="6591791807" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1649248" lon="-45.7946107"/>
414 <node id="6591791808" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937" lat="-23.1648923" lon="-45.7945944"/>
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[illegible]



[illegible]

[illegible]

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502 <node id="6591835576" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626877" lon="-45.7950523"/>
503 <node id="6591835577" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626987" lon="-45.7949862">
504   <tag k="barrier" v="lift_gate"/>
505 </node>
506 <node id="6591835578" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1628118" lon="-45.7953455"/>
507 <node id="6591835579" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1628236" lon="-45.7953000"/>
508 <node id="6591835580" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1628199" lon="-45.7952098"/>
509 <node id="6591835581" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627674" lon="-45.7951448"/>
510 <node id="6591835582" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627336" lon="-45.7951231"/>
511 <node id="6591835583" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627234" lon="-45.7950943"/>
512 <node id="6591835584" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627175" lon="-45.7950769"/>
513 <node id="6591878085" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627145" lon="-45.7950610"/>
514 <node id="6591878086" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627128" lon="-45.7950425"/>
515 <node id="6591878087" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626879" lon="-45.7951050"/>
516 <node id="6591878088" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626727" lon="-45.7951271"/>
517 <node id="6591878089" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627025" lon="-45.7951203"/>
518 <node id="6591878090" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626810" lon="-45.7951252"/>
519 <node id="6591878091" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627212" lon="-45.7950117">
520   <tag k="barrier" v="lift_gate"/>
521 </node>
522 <node id="6591878092" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627286" lon="-45.7950003"/>
523 <node id="6591878093" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627347" lon="-45.7949908"/>
524 <node id="6591878094" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627390" lon="-45.7949790"/>
525 <node id="6591878095" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627425" lon="-45.7949672"/>
526 <node id="6591878096" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627442" lon="-45.7949531"/>
527 <node id="6591878097" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627438" lon="-45.7949314"/>
528 <node id="6591878098" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627421" lon="-45.7949130"/>
529 <node id="6591878099" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627347" lon="-45.7948942"/>
530 <node id="6591878100" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1627187" lon="-45.7948720"/>
531 <node id="6591878101" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1625713" lon="-45.7946778"/>
532 <node id="6591878102" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1625656" lon="-45.7946617"/>
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[illegible]

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562 <node id="6591878132" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620954" lon="-45.7958765"/>
563 <node id="6591878133" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620991" lon="-45.7959053"/>
564 <node id="6591878134" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620949" lon="-45.7959444"/>
565 <node id="6591878135" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620773" lon="-45.7959713"/>
566 <node id="6591878136" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620510" lon="-45.7959996"/>
567 <node id="6591878137" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620246" lon="-45.7960194"/>
568 <node id="6591878138" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619965" lon="-45.7960283"/>
569 <node id="6591878139" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619749" lon="-45.7960242"/>
570 <node id="6591878140" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619546" lon="-45.7960117"/>
571 <node id="6591878141" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619404" lon="-45.7959886"/>
572 <node id="6591878142" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619242" lon="-45.7959613"/>
573 <node id="6591878143" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619154" lon="-45.7959294"/>
574 <node id="6591878144" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619137" lon="-45.7959055"/>
575 <node id="6591878145" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619255" lon="-45.7958709"/>
576 <node id="6591878146" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619445" lon="-45.7958385"/>
577 <node id="6591878147" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1619840" lon="-45.7958132"/>
578 <node id="6591878148" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620317" lon="-45.7958010"/>
579 <node id="6591878149" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620641" lon="-45.7958051"/>
580 <node id="6591878150" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620851" lon="-45.7958057"/>
581 <node id="6591878151" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618858" lon="-45.7953466">
582 <tag k="entrance" v="yes"/>
583 </node>
584 <node id="6591878152" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618464" lon="-45.7952952">
585 <tag k="barrier" v="gate"/>
586 </node>
587 <node id="6591878153" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618252" lon="-45.7952895"/>
588 <node id="6591878154" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1620917" lon="-45.7954985">
589 <tag k="entrance" v="yes"/>
590 </node>
591 <node id="6591878155" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1621105" lon="-45.7955155"/>
592 <node id="6591878156" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1622522" lon="-45.7953873"/>
593 <node id="6591878157" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1622467" lon="-45.7953495"/>
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594 <node id="6591878158" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626560" lon="-45.7949828"/>
595 <node id="6591878159" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626673" lon="-45.7949714"/>
596 <node id="6591878160" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626768" lon="-45.7949568"/>
597 <node id="6591878161" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626803" lon="-45.7949488"/>
598 <node id="6591878162" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626829" lon="-45.7949356"/>
599 <node id="6591878163" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626794" lon="-45.7949238"/>
600 <node id="6591878164" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626725" lon="-45.7949096"/>
601 <node id="6591878165" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1624926" lon="-45.7946767"/>
602 <node id="6591878166" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626748" lon="-45.7949599">
603 <tag k="barrier" v="gate"/>
604 </node>
605 <node id="6591878167" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626395" lon="-45.7949853"/>
606 <node id="6591878168" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626578" lon="-45.7949689"/>
607 <node id="6591878169" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626402" lon="-45.7949458"/>
608 <node id="6591878170" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1626220" lon="-45.7949622"/>
609 <node id="6591878171" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618584" lon="-45.7960254"/>
610 <node id="6591878172" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
    :51:52Z" user="Nathan Cruz" uid="2268937" lat="-23.1618397" lon="-45.7959010"/>
611 <node id="6725323595" visible="true" version="1" changeset="73517757" timestamp="2019-08-19T23
    :59:12Z" user="Geovanny Avelar" uid="10236930" lat="-23.1620863" lon="-45.7953990">
612 <tag k="addr:city" v="S o Jos dos Campos"/>
613 <tag k="addr:postcode" v="12247-014"/>
614 <tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>
615 <tag k="addr:suburb" v="Eug nio de Mello"/>
616 <tag k="amenity" v="university"/>
617 <tag k="internet_access" v="yes"/>
618 <tag k="internet_access:fee" v="no"/>
619 <tag k="name" v="Faculdade de Tecnologia de S o Jos dos Campos"/>
620 <tag k="phone" v="+55 (12) 3905-2423"/>
621 <tag k="website" v="https://fatecsjc-prd.azurewebsites.net/">
622 </node>
623 <node id="7102242825" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1589445" lon="-45.7981564"/>
624 <node id="7102242829" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1581024" lon="-45.7965445"/>
625 <node id="7102242830" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1588023" lon="-45.7966137"/>
626 <node id="7102242831" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1594498" lon="-45.7968864"/>
627 <node id="7102242832" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1597192" lon="-45.7974970"/>
628 <node id="7102242833" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
    :14:23Z" user="Dancandido" uid="636539" lat="-23.1597155" lon="-45.7977331"/>
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629 <node id="7102242834" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
:14:23Z" user="Dancandido" uid="636539" lat="-23.1596706" lon="-45.7979000"/>
630 <node id="7102242835" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
:14:23Z" user="Dancandido" uid="636539" lat="-23.1593749" lon="-45.7981768"/>
631 <node id="7102242836" visible="true" version="1" changeset="79129272" timestamp="2020-01-02T20
:14:23Z" user="Dancandido" uid="636539" lat="-23.1590493" lon="-45.7982094"/>
632 <node id="7116730285" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
:41:16Z" user="Dancandido" uid="636539" lat="-23.1611742" lon="-45.7947634"/>
633 <node id="7116730286" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
:41:16Z" user="Dancandido" uid="636539" lat="-23.1621903" lon="-45.7961062"/>
634 <node id="7116730287" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
:41:16Z" user="Dancandido" uid="636539" lat="-23.1624748" lon="-45.7963778"/>
635 <node id="7116730288" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
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636 <node id="7116730291" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
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637 <node id="7116730292" visible="true" version="2" changeset="91347123" timestamp="2020-09-23T07
:58:57Z" user="AlaskanWay" uid="10529216" lat="-23.1719398" lon="-45.7996162"/>
638 <node id="7116730293" visible="true" version="1" changeset="79339332" timestamp="2020-01-08T12
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639 <node id="7186893663" visible="true" version="1" changeset="80567878" timestamp="2020-02-05T05
:59:20Z" user="gscholz" uid="109705" lat="-23.1632387" lon="-45.8044492"/>
640 <node id="7186893664" visible="true" version="1" changeset="80567878" timestamp="2020-02-05T05
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641 <node id="7186893665" visible="true" version="1" changeset="80567878" timestamp="2020-02-05T05
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642 <node id="7186893666" visible="true" version="1" changeset="80567878" timestamp="2020-02-05T05
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643 <node id="7186893677" visible="true" version="1" changeset="80567878" timestamp="2020-02-05T05
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644 <node id="7187423813" visible="true" version="1" changeset="80581847" timestamp="2020-02-05T10
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645 <node id="7187423815" visible="true" version="1" changeset="80581847" timestamp="2020-02-05T10
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646 <node id="7187423816" visible="true" version="1" changeset="80581847" timestamp="2020-02-05T10
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647 <node id="7187423818" visible="true" version="1" changeset="80581847" timestamp="2020-02-05T10
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648 <node id="7187440919" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
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649 <node id="7187440920" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1606352" lon="-45.7917927"/>
650 <node id="7187440921" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1609365" lon="-45.7920730"/>
651 <node id="7187440922" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1611784" lon="-45.7921953"/>
652 <node id="7187440923" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1613220" lon="-45.7922841"/>
653 <node id="7187440924" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1627103" lon="-45.7936628"/>
654 <node id="7187440925" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1598464" lon="-45.7912310"/>
655 <node id="7187440926" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
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656 <node id="7187440927" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
:27:31Z" user="Cadu Leite" uid="467330" lat="-23.1587596" lon="-45.7911302"/>
657 <node id="7187440928" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
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658 <node id="7187440929" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
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659 <node id="7187440930" visible="true" version="1" changeset="80582218" timestamp="2020-02-05T10
    :27:31Z" user="Cadu Leite" uid="467330" lat="-23.1608702" lon="-45.7883899"/>
660 <node id="7578174958" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1611714" lon="-45.8026038"/>
661 <node id="7578174959" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1615308" lon="-45.8019320"/>
662 <node id="7578174960" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1615841" lon="-45.8011868"/>
663 <node id="7578174961" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1615742" lon="-45.8007858"/>
664 <node id="7578174962" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1614804" lon="-45.8007928"/>
665 <node id="7578174963" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1613863" lon="-45.8008640"/>
666 <node id="7578174964" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
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667 <node id="7578174965" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1608509" lon="-45.8019689"/>
668 <node id="7578174966" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
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669 <node id="7578174967" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1610315" lon="-45.8014751"/>
670 <node id="7578174968" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1609711" lon="-45.8016000"/>
671 <node id="7578174969" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1609260" lon="-45.8017438"/>
672 <node id="7578175886" visible="true" version="1" changeset="86053188" timestamp="2020-06-01T15
    :35:56Z" user="Dancandido" uid="636539" lat="-23.1615740" lon="-45.8013281"/>
673 <node id="7580705424" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1634348" lon="-45.7960655"/>
674 <node id="7580705425" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1628069" lon="-45.7966672"/>
675 <node id="7580705426" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1628238" lon="-45.7976212"/>
676 <node id="7580705427" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1628164" lon="-45.7981823"/>
677 <node id="7580705428" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1627528" lon="-45.7985319"/>
678 <node id="7580705429" visible="true" version="1" changeset="86090814" timestamp="2020-06-02T17
    :10:50Z" user="Dancandido" uid="636539" lat="-23.1625633" lon="-45.7987704"/>
679 <node id="7580802209" visible="true" version="1" changeset="86091559" timestamp="2020-06-02T17
    :32:01Z" user="Dancandido" uid="636539" lat="-23.1635006" lon="-45.7916844"/>
680 <node id="7580802223" visible="true" version="1" changeset="86091559" timestamp="2020-06-02T17
    :32:01Z" user="Dancandido" uid="636539" lat="-23.1638218" lon="-45.7898582"/>
681 <node id="7650144965" visible="true" version="1" changeset="87098255" timestamp="2020-06-24T17
    :41:22Z" user="Dancandido" uid="636539" lat="-23.1638639" lon="-45.7893577"/>
682 <node id="7650144966" visible="true" version="1" changeset="87098255" timestamp="2020-06-24T17
    :41:22Z" user="Dancandido" uid="636539" lat="-23.1638761" lon="-45.7894139"/>
683 <node id="7650144970" visible="true" version="1" changeset="87098255" timestamp="2020-06-24T17
    :41:22Z" user="Dancandido" uid="636539" lat="-23.1637088" lon="-45.7866353"/>
684 <node id="7933629972" visible="true" version="1" changeset="91345168" timestamp="2020-09-23T07
    :36:08Z" user="AlaskanWay" uid="10529216" lat="-23.1708660" lon="-45.7968146"/>
685 <node id="7937448311" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
    :50:46Z" user="AlaskanWay" uid="10529216" lat="-23.1683482" lon="-45.7943787"/>
686 <node id="7937448312" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
    :50:46Z" user="AlaskanWay" uid="10529216" lat="-23.1681651" lon="-45.7944574"/>
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687 <node id="7937448313" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
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688 <node id="7937448314" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
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689 <node id="7937448315" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
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690 <node id="7937448318" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
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691 <node id="7937448320" visible="true" version="1" changeset="91428372" timestamp="2020-09-24T10
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692 <node id="8178879028" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1644031" lon="-45.7961643"/>
693 <node id="8178879029" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1643744" lon="-45.7960760"/>
694 <node id="8178879030" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1644105" lon="-45.7958963"/>
695 <node id="8178879031" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
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696 <node id="8178879032" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
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697 <node id="8178879033" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1647834" lon="-45.7958711"/>
698 <node id="8178879034" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
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699 <node id="8178879035" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
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700 <node id="8178879036" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
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701 <node id="8178879037" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1647739" lon="-45.7962140"/>
702 <node id="8178879038" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1647037" lon="-45.7962681"/>
703 <node id="8178879039" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1646203" lon="-45.7962910"/>
704 <node id="8178879040" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1645349" lon="-45.7962795"/>
705 <node id="8178879041" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1644591" lon="-45.7962353"/>
706 <node id="8178879042" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1643770" lon="-45.7959825"/>
707 <node id="8178879043" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1647164" lon="-45.7958125"/>
708 <node id="8178879044" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075" lat="-23.1638633" lon="-45.7950632"/>
709 <way id="220005665" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
:51:52Z" user="Nathan Cruz" uid="2268937">
710 <nd ref="1762134432"/>
711 <nd ref="1762134388"/>
712 <nd ref="1762134401"/>
713 <nd ref="6591878108"/>
714 <nd ref="6591878109"/>
715 <nd ref="6591878110"/>
716 <nd ref="1762134431"/>
717 <nd ref="6591878115"/>
718 <nd ref="6591878111"/>
719 <nd ref="6591878114"/>
720 <nd ref="1762134385"/>
721 <nd ref="6591878112"/>
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722 <nd ref="6591878113"/>
723 <nd ref="1762134399"/>
724 <nd ref="1762134413"/>
725 <tag k="highway" v="service"/>
726 <tag k="service" v="parking_aisle"/>
727 </way>
728 <way id="297525070" visible="true" version="3" changeset="71941066" timestamp="2019-07-05T17
:51:52Z" user="Nathan Cruz" uid="2268937">
729 <nd ref="1762134406"/>
730 <nd ref="1762134390"/>
731 <nd ref="1762134418"/>
732 <nd ref="6591878107"/>
733 <nd ref="1762134410"/>
734 <tag k="highway" v="service"/>
735 </way>
736 <way id="298675959" visible="true" version="3" changeset="71941066" timestamp="2019-07-05T17
:51:52Z" user="Nathan Cruz" uid="2268937">
737 <nd ref="3025746170"/>
738 <nd ref="6591878171"/>
739 <nd ref="6591878172"/>
740 <nd ref="3025746171"/>
741 <nd ref="3025746172"/>
742 <nd ref="3025746173"/>
743 <nd ref="3025746174"/>
744 <nd ref="3025746170"/>
745 <tag k="amenity" v="parking"/>
746 </way>
747 <way id="300655205" visible="true" version="5" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075">
748 <nd ref="1762134425"/>
749 <nd ref="1762134410"/>
750 <nd ref="3014182663"/>
751 <nd ref="4870140413"/>
752 <nd ref="4870140414"/>
753 <nd ref="4870140412"/>
754 <nd ref="4870140415"/>
755 <nd ref="8178879042"/>
756 <tag k="highway" v="residential"/>
757 <tag k="maxspeed" v="40"/>
758 <tag k="name" v="Avenida Cesare Monsueto Giulio Lattes"/>
759 <tag k="oneway" v="yes"/>
760 <tag k="surface" v="asphalt"/>
761 </way>
762 <way id="300655206" visible="true" version="11" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075">
763 <nd ref="1762134407"/>
764 <nd ref="8178879044"/>
765 <nd ref="6565259853"/>
766 <nd ref="6565259859"/>
767 <nd ref="6565242781"/>
768 <nd ref="3047498508"/>
769 <nd ref="7187423818"/>
770 <nd ref="3047498509"/>
771 <nd ref="3047498510"/>
772 <nd ref="7187423815"/>
773 <nd ref="3047498511"/>
774 <nd ref="3047498512"/>
775 <nd ref="3047498513"/>
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776 <nd ref="7187423816"/>
777 <nd ref="4870141423"/>
778 <nd ref="3047498514"/>
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780 <nd ref="3047498516"/>
781 <nd ref="4870140419"/>
782 <nd ref="3047498517"/>
783 <nd ref="7187423813"/>
784 <nd ref="3047498518"/>
785 <nd ref="3047498519"/>
786 <nd ref="3047498520"/>
787 <nd ref="3047498521"/>
788 <nd ref="3047498522"/>
789 <nd ref="6281736654"/>
790 <nd ref="3047498523"/>
791 <nd ref="3047498524"/>
792 <nd ref="3047498525"/>
793 <nd ref="4667805894"/>
794 <nd ref="3047498526"/>
795 <nd ref="6281736655"/>
796 <nd ref="3047498528"/>
797 <tag k="highway" v="residential"/>
798 <tag k="maxspeed" v="40"/>
799 <tag k="name" v="Avenida Cesare Monsueto Giulio Lattes"/>
800 <tag k="oneway" v="yes"/>
801 </way>
802 <way id="351471422" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
803 <nd ref="1762134418"/>
804 <nd ref="3014182664"/>
805 <nd ref="6591835572"/>
806 <nd ref="6591835573"/>
807 <nd ref="6591835574"/>
808 <nd ref="6591835577"/>
809 <nd ref="6591835575"/>
810 <nd ref="6591835576"/>
811 <nd ref="6591878087"/>
812 <nd ref="6591878090"/>
813 <tag k="highway" v="service"/>
814 <tag k="oneway" v="yes"/>
815 </way>
816 <way id="495236365" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
817 <nd ref="4870135470"/>
818 <nd ref="6591878154"/>
819 <nd ref="4870135471"/>
820 <nd ref="4870135472"/>
821 <nd ref="6591878151"/>
822 <nd ref="4870135473"/>
823 <nd ref="4870135470"/>
824 <tag k="building" v="university"/>
825 <tag k="building:levels" v="6"/>
826 </way>
827 <way id="495236366" visible="true" version="2" changeset="71941066" timestamp="2019-07-05T17
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828 <nd ref="4870135474"/>
829 <nd ref="4870135475"/>
830 <nd ref="4870135476"/>
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831 <nd ref="4870135477"/>
832 <nd ref="4870135474"/>
833 <tag k="building" v="university"/>
834 <tag k="building:levels" v="2"/>
835 </way>
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843 <tag k="building" v="university"/>
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950 <tag k="highway" v="footway"/>
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1005 <tag k="addr:housenumber" v="1201"/>
1006 <tag k="addr:postcode" v="12247-014"/>
1007 <tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>
1008 <tag k="addr:suburb" v="Eug nio de Mello"/>
1009 <tag k="amenity" v="university"/>
1010 <tag k="email" v="secretaria.sjc@unifesp.br"/>
1011 <tag k="internet_access" v="yes"/>
1012 <tag k="internet_access:fee" v="no"/>
1013 <tag k="name" v="UNIFESP"/>
1014 <tag k="operator" v="Universidade Federal de S o Paulo"/>
1015 <tag k="operator:type" v="public"/>
1016 <tag k="phone" v="+55 12 3924 9500"/>
1017 <tag k="website" v="http://www.sjc.unifesp.br/">
1018 <tag k="wikidata" v="Q4384447"/>
1019 <tag k="wikipedia" v="en:Federal University of S o Paulo"/>
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1066 <tag k="service" v="parking_aisle"/>
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1187 </way>
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1235 </way>
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1243 </way>
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1304 <tag k="highway" v="service"/>
1305 </way>
1306 <way id="699134626" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
:21:07Z" user="Cadu Leite" uid="467330">
1307 <nd ref="6565259853"/>
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1308 <nd ref="6565259704"/>
1309 <tag k="highway" v="service"/>
1310 <tag k="oneway" v="yes"/>
1311 </way>
1312 <way id="699134627" visible="true" version="2" changeset="80581847" timestamp="2020-02-05T10
:21:07Z" user="Cadu Leite" uid="467330">
1313 <nd ref="6565259863"/>
1314 <nd ref="6565259859"/>
1315 <tag k="highway" v="service"/>
1316 <tag k="oneway" v="yes"/>
1317 </way>
1318 <way id="699134628" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937">
1319 <nd ref="6565259704"/>
1320 <nd ref="6565259866"/>
1321 <nd ref="6565259865"/>
1322 <tag k="highway" v="service"/>
1323 <tag k="oneway" v="yes"/>
1324 </way>
1325 <way id="699134629" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937">
1326 <nd ref="6565259865"/>
1327 <nd ref="6565259867"/>
1328 <nd ref="6565259863"/>
1329 <tag k="highway" v="service"/>
1330 <tag k="oneway" v="yes"/>
1331 </way>
1332 <way id="699134630" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937">
1333 <nd ref="4897755117"/>
1334 <nd ref="6565242765"/>
1335 <nd ref="6565242776"/>
1336 <nd ref="6565242762"/>
1337 <nd ref="6565242758"/>
1338 <nd ref="6565242755"/>
1339 <nd ref="6565242749"/>
1340 <nd ref="6565242751"/>
1341 <nd ref="6565259824"/>
1342 <nd ref="6565259834"/>
1343 <nd ref="6565259865"/>
1344 <tag k="highway" v="service"/>
1345 </way>
1346 <way id="699134631" visible="true" version="2" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937">
1347 <nd ref="6565259870"/>
1348 <nd ref="5381985251"/>
1349 <nd ref="5381985252"/>
1350 <nd ref="5381985253"/>
1351 <nd ref="6591791896"/>
1352 <nd ref="5381985244"/>
1353 <nd ref="6565259871"/>
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1355 <nd ref="6565259873"/>
1356 <nd ref="6565259874"/>
1357 <nd ref="5381985241"/>
1358 <nd ref="5381985242"/>
1359 <nd ref="5381985243"/>
1360 <nd ref="5381985234"/>
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1361 <nd ref="6565259875"/>
1362 <nd ref="6565242779"/>
1363 <nd ref="5381985248"/>
1364 <nd ref="6565259876"/>
1365 <nd ref="6565259870"/>
1366 <tag k="natural" v="grassland"/>
1367 </way>
1368 <way id="699134632" visible="true" version="1" changeset="71520463" timestamp="2019-06-22T23
:38:07Z" user="Nathan Cruz" uid="2268937">
1369 <nd ref="6565259877"/>
1370 <nd ref="6565259878"/>
1371 <nd ref="6565259879"/>
1372 <nd ref="6565259880"/>
1373 <nd ref="6565259881"/>
1374 <nd ref="6565259882"/>
1375 <nd ref="6565259883"/>
1376 <nd ref="6565259884"/>
1377 <nd ref="6565259885"/>
1378 <nd ref="6565259886"/>
1379 <nd ref="6565259877"/>
1380 <tag k="man_made" v="water_tower"/>
1381 </way>
1382 <way id="701919036" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937">
1383 <nd ref="6591764247"/>
1384 <nd ref="6591764248"/>
1385 <nd ref="6591764249"/>
1386 <nd ref="6591764250"/>
1387 <nd ref="6591764253"/>
1388 <nd ref="6591764254"/>
1389 <nd ref="6591764255"/>
1390 <nd ref="6591764251"/>
1391 <nd ref="6591764252"/>
1392 <nd ref="5381985252"/>
1393 <nd ref="5381985253"/>
1394 <nd ref="6591791896"/>
1395 <nd ref="5381985244"/>
1396 <nd ref="6591791894"/>
1397 <nd ref="6591791895"/>
1398 <nd ref="6591764247"/>
1399 <tag k="area" v="yes"/>
1400 <tag k="description" v="Pista de corrida off-road usada na competi o Baja SAE Brasil."/>
1401 <tag k="leisure" v="pitch"/>
1402 <tag k="lit" v="no"/>
1403 <tag k="name" v="Circuito Baja"/>
1404 <tag k="sport" v="motorcross;motor"/>
1405 </way>
1406 <way id="701919039" visible="true" version="2" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075">
1407 <nd ref="8178879044"/>
1408 <nd ref="6591791699"/>
1409 <tag k="highway" v="service"/>
1410 <tag k="surface" v="dirt"/>
1411 </way>
1412 <way id="701919040" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
:55:42Z" user="Nathan Cruz" uid="2268937">
1413 <nd ref="6591791710"/>
1414 <nd ref="6591791739"/>
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1415 <nd ref="6591791711"/>
1416 <tag k="highway" v="raceway"/>
1417 <tag k="lit" v="no"/>
1418 <tag k="sport" v="motor;motocross"/>
1419 <tag k="surface" v="dirt"/>
1420 </way>
1421 <way id="701919042" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1422 <nd ref="6591791739"/>
1423 <nd ref="6591791740"/>
1424 <nd ref="6591791741"/>
1425 <nd ref="6591791742"/>
1426 <nd ref="6591791743"/>
1427 <nd ref="6591791744"/>
1428 <nd ref="6591791745"/>
1429 <nd ref="6591791746"/>
1430 <nd ref="6591791747"/>
1431 <nd ref="6591791713"/>
1432 <nd ref="6591791714"/>
1433 <nd ref="6591791715"/>
1434 <nd ref="6591791716"/>
1435 <nd ref="6591791717"/>
1436 <nd ref="6591791718"/>
1437 <nd ref="6591791719"/>
1438 <nd ref="6591791720"/>
1439 <nd ref="6591791721"/>
1440 <nd ref="6591791722"/>
1441 <nd ref="6591791723"/>
1442 <nd ref="6591791724"/>
1443 <nd ref="6591791725"/>
1444 <nd ref="6591764256"/>
1445 <nd ref="6591791726"/>
1446 <nd ref="6591791727"/>
1447 <nd ref="6591791728"/>
1448 <nd ref="6591791729"/>
1449 <nd ref="6591791730"/>
1450 <nd ref="6591791731"/>
1451 <nd ref="6591791732"/>
1452 <nd ref="6591791733"/>
1453 <nd ref="6591791734"/>
1454 <nd ref="6591791735"/>
1455 <nd ref="6591791736"/>
1456 <nd ref="6591791738"/>
1457 <nd ref="6591791737"/>
1458 <nd ref="6591791713"/>
1459 <tag k="highway" v="raceway"/>
1460 <tag k="lit" v="no"/>
1461 <tag k="sport" v="motor;motocross"/>
1462 <tag k="surface" v="dirt"/>
1463 </way>
1464 <way id="701919047" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1465 <nd ref="6591791699"/>
1466 <nd ref="6591791700"/>
1467 <nd ref="6591791701"/>
1468 <nd ref="6591791702"/>
1469 <nd ref="6591791703"/>
1470 <nd ref="6591791704"/>
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1471 <nd ref="6591791705"/>
1472 <nd ref="6591791706"/>
1473 <tag k="highway" v="raceway"/>
1474 <tag k="lit" v="no"/>
1475 <tag k="sport" v="motor;motocross"/>
1476 <tag k="surface" v="dirt"/>
1477 </way>
1478 <way id="701919048" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1479 <nd ref="6591791825"/>
1480 <nd ref="6591791826"/>
1481 <nd ref="6591791827"/>
1482 <nd ref="6591791828"/>
1483 <nd ref="6591791829"/>
1484 <nd ref="6591791830"/>
1485 <nd ref="6591791831"/>
1486 <nd ref="6591791832"/>
1487 <nd ref="6591791833"/>
1488 <nd ref="6591791834"/>
1489 <nd ref="6591791836"/>
1490 <nd ref="6591791840"/>
1491 <nd ref="6591791873"/>
1492 <nd ref="6591791874"/>
1493 <nd ref="6591791875"/>
1494 <nd ref="6591791876"/>
1495 <nd ref="6591791877"/>
1496 <nd ref="6591791878"/>
1497 <nd ref="6591791861"/>
1498 <tag k="highway" v="raceway"/>
1499 <tag k="lit" v="no"/>
1500 <tag k="sport" v="motor;motocross"/>
1501 <tag k="surface" v="dirt"/>
1502 </way>
1503 <way id="701919051" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1504 <nd ref="6591791861"/>
1505 <nd ref="6591791862"/>
1506 <nd ref="6591791863"/>
1507 <nd ref="6591791864"/>
1508 <nd ref="6591791865"/>
1509 <nd ref="6591791866"/>
1510 <nd ref="6591791867"/>
1511 <nd ref="6591791868"/>
1512 <nd ref="6591791869"/>
1513 <nd ref="6591791870"/>
1514 <nd ref="6591791871"/>
1515 <nd ref="6591791872"/>
1516 <nd ref="6591791848"/>
1517 <tag k="highway" v="raceway"/>
1518 <tag k="lit" v="no"/>
1519 <tag k="sport" v="motor;motocross"/>
1520 <tag k="surface" v="dirt"/>
1521 </way>
1522 <way id="701919052" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1523 <nd ref="6591791861"/>
1524 <nd ref="6591791879"/>
1525 <nd ref="6591791880"/>
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1526 <nd ref="6591791881"/>
1527 <nd ref="6591791882"/>
1528 <nd ref="6591791883"/>
1529 <nd ref="6591791884"/>
1530 <nd ref="6591791885"/>
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1532 <nd ref="6591791887"/>
1533 <nd ref="6591791888"/>
1534 <nd ref="6591791889"/>
1535 <nd ref="6591791890"/>
1536 <nd ref="6591791891"/>
1537 <nd ref="6591791892"/>
1538 <nd ref="6591791893"/>
1539 <nd ref="6591791860"/>
1540 <tag k="highway" v="raceway"/>
1541 <tag k="lit" v="no"/>
1542 <tag k="sport" v="motor;motocross"/>
1543 <tag k="surface" v="dirt"/>
1544 </way>
1545 <way id="701919053" visible="true" version="1" changeset="71939220" timestamp="2019-07-05T16
      :55:42Z" user="Nathan Cruz" uid="2268937">
1546 <nd ref="6591791840"/>
1547 <nd ref="6591791839"/>
1548 <nd ref="6591791838"/>
1549 <nd ref="6591791837"/>
1550 <nd ref="6591791835"/>
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1554 <nd ref="6591791822"/>
1555 <nd ref="6591791821"/>
1556 <nd ref="6591791820"/>
1557 <nd ref="6591791819"/>
1558 <nd ref="6591791818"/>
1559 <nd ref="6591791817"/>
1560 <nd ref="6591791816"/>
1561 <nd ref="6591791815"/>
1562 <nd ref="6591791814"/>
1563 <nd ref="6591791813"/>
1564 <nd ref="6591791812"/>
1565 <nd ref="6591791811"/>
1566 <nd ref="6591791810"/>
1567 <nd ref="6591791809"/>
1568 <nd ref="6591791808"/>
1569 <nd ref="6591791807"/>
1570 <nd ref="6591791806"/>
1571 <nd ref="6591791805"/>
1572 <nd ref="6591791897"/>
1573 <nd ref="6591791898"/>
1574 <nd ref="6591791899"/>
1575 <nd ref="6591791723"/>
1576 <tag k="highway" v="raceway"/>
1577 <tag k="lit" v="no"/>
1578 <tag k="sport" v="motor;motocross"/>
1579 <tag k="surface" v="dirt"/>
1580 </way>
1581 <way id="701927890" visible="true" version="2" changeset="79339332" timestamp="2020-01-08T12
      :41:16Z" user="Dancandido" uid="636539">
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1582 <nd ref="6591835562"/>
1583 <nd ref="6591835563"/>
1584 <nd ref="6591835564"/>
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1586 <nd ref="7116730286"/>
1587 <nd ref="6591835566"/>
1588 <nd ref="6591835567"/>
1589 <nd ref="6591878152"/>
1590 <nd ref="6591835562"/>
1591 <tag k="addr:city" v="S o Jos dos Campos"/>
1592 <tag k="addr:housenumber" v="1350"/>
1593 <tag k="addr:postcode" v="12247-014"/>
1594 <tag k="addr:street" v="Avenida Cesare Monsueto Giulio Lattes"/>
1595 <tag k="addr:suburb" v="Eug nio de Mello"/>
1596 <tag k="amenity" v="university"/>
1597 <tag k="email" v="secretaria.sjc@fatec.sp.gov.br"/>
1598 <tag k="name" v="FATEC - SJC"/>
1599 <tag k="operator" v="FATEC"/>
1600 <tag k="operator:type" v="public"/>
1601 <tag k="phone" v="+55 12 3905 2423"/>
1602 <tag k="website" v="http://www.fatecsjc.edu.br"/>
1603 <tag k="wikidata" v="Q7665663"/>
1604 <tag k="wikipedia" v="en:S o Paulo State Technological College"/>
1605 </way>
1606 <way id="701927891" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
:51:52Z" user="Nathan Cruz" uid="2268937">
1607 <nd ref="6591835568"/>
1608 <nd ref="6591835569"/>
1609 <nd ref="6591835570"/>
1610 <nd ref="6591835571"/>
1611 <nd ref="6591835568"/>
1612 <tag k="building" v="university"/>
1613 </way>
1614 <way id="701927892" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
:51:52Z" user="Nathan Cruz" uid="2268937">
1615 <nd ref="6591835582"/>
1616 <nd ref="6591835583"/>
1617 <nd ref="6591835584"/>
1618 <nd ref="6591878085"/>
1619 <nd ref="6591878086"/>
1620 <nd ref="6591878091"/>
1621 <nd ref="6591878092"/>
1622 <nd ref="6591878093"/>
1623 <nd ref="6591878094"/>
1624 <nd ref="6591878095"/>
1625 <nd ref="6591878096"/>
1626 <nd ref="6591878097"/>
1627 <nd ref="6591878098"/>
1628 <nd ref="6591878099"/>
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1630 <nd ref="6591878101"/>
1631 <nd ref="6591878102"/>
1632 <nd ref="6591878103"/>
1633 <nd ref="6591878104"/>
1634 <nd ref="6591878105"/>
1635 <nd ref="6591878106"/>
1636 <nd ref="6591878107"/>
1637 <tag k="highway" v="service"/>
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1638 <tag k="oneway" v="yes"/>
1639 </way>
1640 <way id="701927893" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1641 <nd ref="1762134413"/>
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1643 <nd ref="6591835579"/>
1644 <nd ref="1762134429"/>
1645 <nd ref="6591835580"/>
1646 <nd ref="1762134422"/>
1647 <nd ref="6591835581"/>
1648 <nd ref="6591835582"/>
1649 <nd ref="6591878089"/>
1650 <nd ref="6591878090"/>
1651 <nd ref="6591878088"/>
1652 <nd ref="1762134432"/>
1653 <tag k="highway" v="service"/>
1654 </way>
1655 <way id="701927894" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1656 <nd ref="6591878116"/>
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1658 <nd ref="6591878118"/>
1659 <nd ref="6591878119"/>
1660 <nd ref="6591878120"/>
1661 <nd ref="6591878121"/>
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1672 <nd ref="6591878132"/>
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1677 <nd ref="6591878137"/>
1678 <nd ref="6591878138"/>
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1682 <nd ref="6591878142"/>
1683 <nd ref="6591878143"/>
1684 <nd ref="6591878144"/>
1685 <nd ref="6591878145"/>
1686 <nd ref="6591878146"/>
1687 <nd ref="6591878147"/>
1688 <nd ref="6591878148"/>
1689 <nd ref="6591878149"/>
1690 <nd ref="6591878150"/>
1691 <nd ref="6591878116"/>
1692 <tag k="landuse" v="grass"/>
1693 </way>
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1694 <way id="701927895" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1695   <nd ref="6591878151"/>
1696   <nd ref="6591878152"/>
1697   <nd ref="6591878153"/>
1698   <nd ref="5762263257"/>
1699   <tag k="highway" v="footway"/>
1700   <tag k="surface" v="concrete"/>
1701 </way>
1702 <way id="701927896" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1703   <nd ref="6591878154"/>
1704   <nd ref="6591878155"/>
1705   <nd ref="6591878156"/>
1706   <nd ref="6591878157"/>
1707   <nd ref="6591878158"/>
1708   <nd ref="6591878159"/>
1709   <nd ref="6591878166"/>
1710   <nd ref="6591878160"/>
1711   <nd ref="6591878161"/>
1712   <nd ref="6591878162"/>
1713   <nd ref="6591878163"/>
1714   <nd ref="6591878164"/>
1715   <nd ref="6591878165"/>
1716   <nd ref="5762263256"/>
1717   <tag k="highway" v="footway"/>
1718 </way>
1719 <way id="701927897" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1720   <nd ref="6591878167"/>
1721   <nd ref="6591878168"/>
1722   <nd ref="6591878169"/>
1723   <nd ref="6591878170"/>
1724   <nd ref="6591878167"/>
1725   <tag k="building" v="yes"/>
1726 </way>
1727 <way id="701927898" visible="true" version="1" changeset="71941066" timestamp="2019-07-05T17
      :51:52Z" user="Nathan Cruz" uid="2268937">
1728   <nd ref="6591878153"/>
1729   <nd ref="5762263256"/>
1730   <tag k="highway" v="footway"/>
1731 </way>
1732 <way id="761713601" visible="true" version="7" changeset="91428372" timestamp="2020-09-24T10
      :50:46Z" user="AlaskanWay" uid="10529216">
1733   <nd ref="7578174959"/>
1734   <nd ref="7578175886"/>
1735   <nd ref="7578174960"/>
1736   <nd ref="7578174961"/>
1737   <nd ref="7578174962"/>
1738   <nd ref="4585930483"/>
1739   <nd ref="7578174964"/>
1740   <nd ref="7578174963"/>
1741   <nd ref="7578174966"/>
1742   <nd ref="7578174967"/>
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1744   <nd ref="7578174969"/>
1745   <nd ref="7578174965"/>
1746   <nd ref="7102242825"/>
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1751 <nd ref="7102242832"/>
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1758 <nd ref="5709317339"/>
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1760 <nd ref="1650296927"/>
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1762 <nd ref="4870135473"/>
1763 <nd ref="6591835566"/>
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1771 <nd ref="7937448313"/>
1772 <nd ref="7937448312"/>
1773 <nd ref="7937448311"/>
1774 <nd ref="7116730291"/>
1775 <nd ref="3384619353"/>
1776 <nd ref="7933629972"/>
1777 <nd ref="1457897720"/>
1778 <nd ref="7937448318"/>
1779 <nd ref="7937448320"/>
1780 <nd ref="7116730292"/>
1781 <nd ref="7186893663"/>
1782 <nd ref="7186893664"/>
1783 <nd ref="7186893666"/>
1784 <nd ref="7186893665"/>
1785 <nd ref="7186893677"/>
1786 <nd ref="7116730293"/>
1787 <nd ref="7578174958"/>
1788 <nd ref="7578174959"/>
1789 <tag k="landuse" v="meadow"/>
1790 </way>
1791 <way id="810800704" visible="true" version="2" changeset="87920975" timestamp="2020-07-13T11
:31:28Z" user="Dancandido" uid="636539">
1792 <nd ref="7580705424"/>
1793 <nd ref="7580705425"/>
1794 <nd ref="7580705426"/>
1795 <nd ref="7580705427"/>
1796 <nd ref="7580705428"/>
1797 <nd ref="7580705429"/>
1798 <tag k="waterway" v="stream"/>
1799 </way>
1800 <way id="879170606" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
:58:09Z" user="JacksonWard" uid="9535075">
1801 <nd ref="5265685448"/>
1802 <nd ref="5265685443"/>
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1803 <nd ref="6591791804"/>
1804 <nd ref="8178879043"/>
1805 <tag k="highway" v="tertiary"/>
1806 <tag k="oneway" v="yes"/>
1807 <tag k="surface" v="dirt"/>
1808 </way>
1809 <way id="879170607" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
      :58:09Z" user="JacksonWard" uid="9535075">
1810 <nd ref="8178879043"/>
1811 <nd ref="8178879032"/>
1812 <nd ref="1762134407"/>
1813 <nd ref="8178879031"/>
1814 <nd ref="8178879030"/>
1815 <nd ref="8178879042"/>
1816 <tag k="highway" v="tertiary"/>
1817 <tag k="oneway" v="yes"/>
1818 </way>
1819 <way id="879170608" visible="true" version="1" changeset="95030146" timestamp="2020-11-30T08
      :58:09Z" user="JacksonWard" uid="9535075">
1820 <nd ref="8178879042"/>
1821 <nd ref="8178879029"/>
1822 <nd ref="8178879028"/>
1823 <nd ref="8178879041"/>
1824 <nd ref="8178879040"/>
1825 <nd ref="8178879039"/>
1826 <nd ref="8178879038"/>
1827 <nd ref="8178879037"/>
1828 <nd ref="8178879036"/>
1829 <nd ref="8178879035"/>
1830 <nd ref="8178879034"/>
1831 <nd ref="8178879033"/>
1832 <nd ref="8178879043"/>
1833 <tag k="highway" v="tertiary"/>
1834 <tag k="oneway" v="yes"/>
1835 </way>
1836 </osm>
```

# ANEXO B – GeoJSON gerado pelo Overpass Turbo

```
1 {
2   "type": "FeatureCollection",
3   "generator": "overpass-ide",
4   "copyright": "The data included in this document is from www.openstreetmap.org. The data is
5     made available under ODbL.",
6   "timestamp": "2021-02-19T21:34:03Z",
7   "features": [
8     {
9       "type": "Feature",
10      "properties": {
11        "@id": "way/558122127",
12        "addr:city": "S o Jos dos Campos",
13        "addr:housenumber": "1201",
14        "addr:postcode": "12247-014",
15        "addr:street": "Avenida Cesare Monsueto Giulio Lattes",
16        "addr:suburb": "Eug nio de Mello",
17        "amenity": "university",
18        "email": "secretaria.sjc@unifesp.br",
19        "internet_access": "yes",
20        "internet_access:fee": "no",
21        "name": "UNIFESP",
22        "operator": "Universidade Federal de S o Paulo",
23        "operator:type": "public",
24        "phone": "+55 12 3924 9500",
25        "website": "http://www.sjc.unifesp.br/",
26        "wikidata": "Q4384447",
27        "wikipedia": "en:Federal University of S o Paulo"
28      },
29      "geometry": {
30        "type": "Polygon",
31        "coordinates": [
32          [
33            -45.7949118,
34            -23.1638409
35          ],
36          [
37            -45.7941997,
38            -23.1645912
39          ],
40          [
41            -45.7936124,
42            -23.1652101
43          ],
44          [
45            -45.7936553,
46            -23.1658957
```

```
47 ],
48 [
49     -45.7935856,
50     -23.1660387
51 ],
52 [
53     -45.7936017,
54     -23.1666453
55 ],
56 [
57     -45.7932905,
58     -23.166665
59 ],
60 [
61     -45.7932136,
62     -23.1660635
63 ],
64 [
65     -45.7931511,
66     -23.1655751
67 ],
68 [
69     -45.7926216,
70     -23.164819
71 ],
72 [
73     -45.7926076,
74     -23.1647813
75 ],
76 [
77     -45.7924917,
78     -23.1644687
79 ],
80 [
81     -45.7923768,
82     -23.1642145
83 ],
84 [
85     -45.7921755,
86     -23.1640497
87 ],
88 [
89     -45.7922698,
90     -23.1639466
91 ],
92 [
93     -45.7923192,
94     -23.1638876
95 ],
96 [
97     -45.7925342,
98     -23.1640488
99 ],
100 [
101     -45.7926879,
102     -23.1640697
103 ],
104 [
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105         -45.7928651,
106         -23.1638536
107     ],
108     [
109         -45.7935412,
110         -23.1630982
111     ],
112     [
113         -45.7934829,
114         -23.1630436
115     ],
116     [
117         -45.7936455,
118         -23.1628568
119     ],
120     [
121         -45.793761,
122         -23.1627519
123     ],
124     [
125         -45.7945272,
126         -23.1634769
127     ],
128     [
129         -45.7949118,
130         -23.1638409
131     ]
132 ]
133 ]
134 },
135 "id": "way/558122127"
136 },
137 {
138     "type": "Feature",
139     "properties": {
140         "@id": "way/701927890",
141         "addr:city": "S o Jos dos Campos",
142         "addr:housenumber": "1350",
143         "addr:postcode": "12247-014",
144         "addr:street": "Avenida Cesare Monsueto Giulio Lattes",
145         "addr:suburb": "Eug nio de Mello",
146         "amenity": "university",
147         "email": "secretaria.sjc@fatec.sp.gov.br",
148         "name": "FATEC - SJC",
149         "operator": "FATEC",
150         "operator:type": "public",
151         "phone": "+55 12 3905 2423",
152         "website": "http://www.fatecsjc.edu.br/",
153         "wikidata": "Q7665663",
154         "wikipedia": "en:S o Paulo State Technological College"
155     },
156     "geometry": {
157         "type": "Polygon",
158         "coordinates": [
159             [
160                 [
161                     -45.7947132,
162                     -23.162481

```

```

163     ],
164     [
165         -45.7952952,
166         -23.1618464
167     ],
168     [
169         -45.7955677,
170         -23.1615492
171     ],
172     [
173         -45.7963408,
174         -23.1619328
175     ],
176     [
177         -45.7961062,
178         -23.1621903
179     ],
180     [
181         -45.7955694,
182         -23.1627797
183     ],
184     [
185         -45.7957952,
186         -23.1629451
187     ],
188     [
189         -45.7955974,
190         -23.1631768
191     ],
192     [
193         -45.7947132,
194         -23.162481
195     ]
196 ]
197 ]
198 },
199 "id": "way/701927890"
200 },
201 {
202     "type": "Feature",
203     "properties": {
204         "@id": "node/6725323595",
205         "addr:city": "S o Jos dos Campos",
206         "addr:postcode": "12247-014",
207         "addr:street": "Avenida Cesare Monsueto Giulio Lattes",
208         "addr:suburb": "Eug nio de Mello",
209         "amenity": "university",
210         "internet_access": "yes",
211         "internet_access:fee": "no",
212         "name": "Faculdade de Tecnologia de S o Jos dos Campos",
213         "phone": "+55 (12) 3905-2423",
214         "website": "https://fatecsjc-prd.azurewebsites.net/"
215     },
216     "geometry": {
217         "type": "Point",
218         "coordinates": [
219             -45.795399,
220             -23.1620863

```

```
221     ]
222   },
223   "id": "node/6725323595"
224 }
225 ]
226 }
```



# ANEXO C – GeoJSON gerado pelo JOSM

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1 {
2   "type": "FeatureCollection",
3   "generator": "JOSM",
4   "bbox": [
5     -45.79741000000,
6     -23.16521910000,
7     -45.79174520000,
8     -23.16139190000
9   ],
10  "features": [
11    {
12      "type": "Feature",
13      "properties": {
14        "highway": "service",
15        "service": "parking_aisle"
16      },
17      "geometry": {
18        "type": "LineString",
19        "coordinates": [
20          [
21            -45.79337870000,
22            -23.16467660000
23          ],
24          [
25            -45.79348480000,
26            -23.16467280000
27          ]
28        ]
29      }
30    },
31    {
32      "type": "Feature",
33      "properties": {
34        "highway": "raceway",
35        "lit": "no",
36        "sport": "motor;motocross",
37        "surface": "dirt"
38      },
39      "geometry": {
40        "type": "LineString",
41        "coordinates": [
42          [
43            -45.79445040000,
44            -23.16472780000
45          ],
46          [
47            -45.79443400000,
48            -23.16477520000
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49      ],
50      [
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52          -23.16480890000
53      ],
54      [
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56          -23.16485770000
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60          -23.16490890000
61      ],
62      [
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72          -23.16497390000
73      ],
74      [
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76          -23.16500330000
77      ],
78      [
79          -45.79472680000,
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82      [
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84          -23.16512360000
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93      ],
94      [
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96          -23.16519650000
97      ],
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101     ],
102     [
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104         -23.16526490000
105     ],
106     [
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110     [  
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113     ],  
114     [  
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117     ],  
118     [  
119         -45.79510740000,  
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122     [  
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125     ],  
126     [  
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129     ],  
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131         -45.79504380000,  
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137     ],  
138     [  
139         -45.79503530000,  
140         -23.16540460000  
141     ],  
142     [  
143         -45.79502360000,  
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145     ],  
146     [  
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148         -23.16535390000  
149     ],  
150     [  
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154     [  
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156         -23.16531010000  
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158     [  
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162     [  
163         -45.79489320000,  
164         -23.16525840000
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```

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176             -23.16518720000
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178         [
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180             -23.16517500000
181         ],
182         [
183             -45.79476280000,
184             -23.16516090000
185         ],
186         [
187             -45.79472680000,
188             -23.16511260000
189         ]
190     ]
191 }
192 },
193 {
194     "type": "Feature",
195     "properties": {
196         "amenity": "motorcycle_parking",
197         "covered": "no"
198     },
199     "geometry": {
200         "type": "Polygon",
201         "coordinates": [
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203                 [
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205                     -23.16348310000
206                 ],
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208                     -45.79422260000,
209                     -23.16355510000
210                 ],
211                 [
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213                     -23.16371220000
214                 ],
215                 [
216                     -45.79418350000,
217                     -23.16381780000
218                 ],
219                 [
220                     -45.79440050000,
221                     -23.16361140000
222                 ],

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223         [
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225             -23.16365020000
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227         [
228             -45.79415000000,
229             -23.16392980000
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231         [
232             -45.79411590000,
233             -23.16390250000
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235         [
236             -45.79390800000,
237             -23.16373450000
238         ],
239         [
240             -45.79389110000,
241             -23.16371580000
242         ],
243         [
244             -45.79413680000,
245             -23.16348310000
246         ]
247     ]
248 ]
249 }
250 },
251 {
252     "type": "Feature",
253     "properties": {
254         "highway": "footway"
255     },
256     "geometry": {
257         "type": "LineString",
258         "coordinates": [
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261                 -23.16182520000
262             ],
263             [
264                 -45.79475920000,
265                 -23.16241280000
266             ]
267         ]
268     }
269 },
270 {
271     "type": "Feature",
272     "properties": {
273         "building": "university",
274         "building:levels": "4"
275     },
276     "geometry": {
277         "type": "Polygon",
278         "coordinates": [
279             [
280

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289             -45.793799400000,
290             -23.163189600000
291         ],
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293             -45.794038000000,
294             -23.163402600000
295         ],
296         [
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298             -23.163481700000
299         ],
300         [
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302             -23.164302900000
303         ]
304     ]
305 ]
306 }
307 },
308 {
309     "type": "Feature",
310     "properties": {
311         "highway": "service",
312         "service": "parking_aisle"
313     },
314     "geometry": {
315         "type": "LineString",
316         "coordinates": [
317             [
318                 -45.793743100000,
319                 -23.164318500000
320             ],
321             [
322                 -45.793658300000,
323                 -23.164241900000
324             ],
325             [
326                 -45.793511000000,
327                 -23.164109000000
328             ]
329         ]
330     }
331 },
332 {
333     "type": "Feature",
334     "properties": {
335         "highway": "footway"
336     },
337     "geometry": {
338         "type": "LineString",

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```
339         "coordinates": [
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343             ],
344             [
345                 -45.79347840000,
346                 -23.16608910000
347             ],
348             [
349                 -45.79344850000,
350                 -23.16604900000
351             ],
352             [
353                 -45.79344680000,
354                 -23.16600390000
355             ],
356             [
357                 -45.79348670000,
358                 -23.16595610000
359             ],
360             [
361                 -45.79352980000,
362                 -23.16593340000
363             ],
364             [
365                 -45.79358220000,
366                 -23.16584560000
367             ],
368             [
369                 -45.79357600000,
370                 -23.16483430000
371             ],
372             [
373                 -45.79312320000,
374                 -23.16481170000
375             ],
376             [
377                 -45.79313060000,
378                 -23.16475480000
379             ],
380             [
381                 -45.79314410000,
382                 -23.16468500000
383             ]
384         ]
385     }
386 },
387 {
388     "type": "Feature",
389     "properties": {
390         "highway": "raceway",
391         "lit": "no",
392         "sport": "motor;motocross",
393         "surface": "dirt"
394     },
395     "geometry": {
396         "type": "LineString",
```

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397         "coordinates": [
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399                 -45.79531700000,
400                 -23.16502780000
401             ],
402             [
403                 -45.79531700000,
404                 -23.16505430000
405             ],
406             [
407                 -45.79531100000,
408                 -23.16507750000
409             ],
410             [
411                 -45.79530140000,
412                 -23.16510290000
413             ],
414             [
415                 -45.79528690000,
416                 -23.16513160000
417             ],
418             [
419                 -45.79527370000,
420                 -23.16515150000
421             ],
422             [
423                 -45.79524130000,
424                 -23.16518570000
425             ],
426             [
427                 -45.79520410000,
428                 -23.16521550000
429             ],
430             [
431                 -45.79516820000,
432                 -23.16522850000
433             ]
434         ]
435     },
436 },
437 {
438     "type": "Feature",
439     "properties": {
440         "highway": "turning_circle"
441     },
442     "geometry": {
443         "type": "Point",
444         "coordinates": [
445             -45.79524880000,
446             -23.16162050000
447         ]
448     }
449 },
450 {
451     "type": "Feature",
452     "properties": {
453         "waterway": "stream"
454     },

```



```

455     "geometry": {
456         "type": "LineString",
457         "coordinates": [
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459                 -45.79606550000,
460                 -23.16343480000
461             ],
462             [
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464                 -23.16280690000
465             ],
466             [
467                 -45.79762120000,
468                 -23.16282380000
469             ],
470             [
471                 -45.79818230000,
472                 -23.16281640000
473             ],
474             [
475                 -45.79853190000,
476                 -23.16275280000
477             ],
478             [
479                 -45.79877040000,
480                 -23.16256330000
481             ]
482         ]
483     },
484 },
485 {
486     "type": "Feature",
487     "properties": {
488         "leisure": "garden"
489     },
490     "geometry": {
491         "type": "Polygon",
492         "coordinates": [
493             [
494                 [
495                     -45.79401160000,
496                     -23.16339760000
497                 ],
498                 [
499                     -45.79393500000,
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502                 [
503                     -45.79387880000,
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505                 ],
506                 [
507                     -45.79395550000,
508                     -23.16334660000
509                 ],
510                 [
511                     -45.79401160000,
512                     -23.16339760000

```

```

513         ]
514     ]
515 ]
516 }
517 },
518 {
519     "type": "Feature",
520     "properties": {
521         "highway": "service"
522     },
523     "geometry": {
524         "type": "LineString",
525         "coordinates": [
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527                 -45.79538370000,
528                 -23.16277240000
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532                 -23.16281180000
533             ],
534             [
535                 -45.79530000000,
536                 -23.16282360000
537             ],
538             [
539                 -45.79524610000,
540                 -23.16283050000
541             ],
542             [
543                 -45.79520980000,
544                 -23.16281990000
545             ],
546             [
547                 -45.79517120000,
548                 -23.16279580000
549             ],
550             [
551                 -45.79514480000,
552                 -23.16276740000
553             ],
554             [
555                 -45.79512310000,
556                 -23.16273360000
557             ],
558             [
559                 -45.79512030000,
560                 -23.16270250000
561             ],
562             [
563                 -45.79512520000,
564                 -23.16268100000
565             ],
566             [
567                 -45.79512710000,
568                 -23.16267270000
569             ],
570             [

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```
571             -45.79515020000,  
572             -23.16263060000  
573         ]  
574     ]  
575 }  
576 },  
577 {  
578     "type": "Feature",  
579     "properties": {  
580         "highway": "tertiary",  
581         "oneway": "yes"  
582     },  
583     "geometry": {  
584         "type": "LineString",  
585         "coordinates": [  
586             [  
587                 -45.79598250000,  
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589             ],  
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594             [  
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597             ],  
598             [  
599                 -45.79623530000,  
600                 -23.16445910000  
601             ],  
602             [  
603                 -45.79627950000,  
604                 -23.16453490000  
605             ],  
606             [  
607                 -45.79629100000,  
608                 -23.16462030000  
609             ],  
610             [  
611                 -45.79626810000,  
612                 -23.16470370000  
613             ],  
614             [  
615                 -45.79621400000,  
616                 -23.16477390000  
617             ],  
618             [  
619                 -45.79613600000,  
620                 -23.16482140000  
621             ],  
622             [  
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624                 -23.16484340000  
625             ],  
626             [  
627                 -45.79595210000,  
628                 -23.16482650000
```

```

629         ],
630         [
631             -45.79587110000,
632             -23.16478340000
633         ],
634         [
635             -45.79581250000,
636             -23.16471640000
637         ]
638     ]
639 }
640 },
641 {
642     "type": "Feature",
643     "properties": {
644         "highway": "service",
645         "service": "parking_aisle"
646     },
647     "geometry": {
648         "type": "LineString",
649         "coordinates": [
650             [
651                 -45.79277240000,
652                 -23.16439830000
653             ],
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655                 -45.79331110000,
656                 -23.16437940000
657             ]
658         ]
659     }
660 },
661 {
662     "type": "Feature",
663     "properties": {
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5093     }  
5094     },
```



```

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```

```
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5209             ]
5210         ]
5211     ]
5212 }
```

```
5211     }
5212 },
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5217     },
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5244             ],
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5252             ],
5253             [
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5260             ],
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5264             ]
5265         ]
5266     }
5267 },
5268 {
```

```
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5272     },
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5297             ]
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5300 },
5301 {
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5313 },
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```

```
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5383 ],
5384 [
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```

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5414         "surface": "dirt"
5415     },
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5432     }
5433 },
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5435     "type": "Feature",
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5438         "description": "Pista de corrida off-road usada na competi o Baja SAE Brasil."
5439         ,
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5440         "lit": "no",
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```

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5499                 ],
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5512     ]
5513 ]
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```



```
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5581 }
5582 },
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5588     },
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5615             ],
```

```

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5668             [
5669                 -45.794084300000,
5670                 -23.163985100000
5671             ]
5672         ]
5673     }

```

```
5674 },
5675 {
5676     "type": "Feature",
5677     "properties": {
5678         "leisure": "garden"
5679     },
5680     "geometry": {
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5682         "coordinates": [
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5704             ]
5705         ]
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5707 },
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5725                 [
5726                     -45.794749000000,
5727                     -23.162499000000
5728                 ],
5729                 [
5730                     -45.794782300000,
5731                     -23.162462500000
```

```
5732 ],
5733 [
5734     -45.79486070000,
5735     -23.16252280000
5736 ]
5737 ]
5738 ]
5739 }
5740 }
5741 ]
5742 }
```

# ANEXO D – *Script* em Python 3

```
1 # -*- coding: utf-8 -*-
2 import sys
3 if sys.version_info[0] == 3:
4     # for Python3
5     from tkinter import *
6 else:
7     # for Python2
8     from Tkinter import *
9 from tkinter import filedialog
10 from tkinter import messagebox
11
12
13 from pytz import timezone
14 import pytz
15
16 import os
17 import psycopg2
18 import time
19 import datetime
20 import threading as thread
21 import math
22 import copy
23 import matplotlib.pyplot as plt
24 import numpy as np
25 import json
26 import datetime
27 import shapely
28 from decimal import Decimal
29
30 from shapely.geometry import Polygon
31 from shapely.geometry import MultiPolygon
32 from shapely.geometry import LineString
33 from shapely.geometry import MultiLineString
34 from shapely.geometry import Point
35 from shapely.geometry import MultiPoint
36 from shapely import wkb
37 from geoalchemy2.shape import to_shape
38 from postgis import Polygon
39 from postgis.psycopg import register
40 import geopandas
41
42 #####
43 #Cria conexão com o BD
44 class Connection():
45
46     @staticmethod
47     def getConnection():
```

```

48         return psycopg2.connect(host='localhost', port=15432, database='backup_pauliceia
49         ',
50         user='postgres', password='postgres')
51 #####
52
53 class DAO():
54     #Requisi o de todas as tabelas no banco
55     @staticmethod
56     def selectAllTableNames():
57         con = Connection.getConnection()
58         cur = con.cursor()
59         cur.execute("select table_name from information_schema.tables where table_schema
60         = 'public' and table_type = 'BASE TABLE'")
61         resultSet = cur.fetchall()
62         tables = []
63         for row in resultSet:
64             tables.append(row[0])
65         cur.close()
66         con.close()
67         return tables
68
69     #Requisi o de nomes das colunas de uma table no banco
70     @staticmethod
71     def selectColumnsNamesFromTable(table):
72         con = Connection.getConnection()
73         cur = con.cursor()
74         cur.execute("SELECT column_name FROM information_schema.columns WHERE
75         table_schema = 'public' AND table_name = %s", [table])
76         resultSet = cur.fetchall()
77         columns = []
78         for row in resultSet:
79             columns.append(row[0])
80         cur.close()
81         con.close()
82         return columns
83
84     #Requisi o de todas as colunas de uma table no banco
85     @staticmethod
86     def selectAllColumnsFromTable(table):
87         con = Connection.getConnection()
88         cur = con.cursor()
89         query = "SELECT * FROM " + table
90         register(con)
91         cur.execute(query)
92         resultSet = cur.fetchall()
93         columns = []
94         for row in resultSet:
95             columns.append(row)
96         cur.close()
97         con.close()
98         return columns
99 #####
100 class GeoJSONFile():
101     #Requisi o do GeoJSON da tabela com tabelName
102     @staticmethod

```

```

103     def getGeoJSONFile(table):
104         try:
105             with open("results//"+"arquivo" + ".geojson", "w") as file:
106                 data = GeoJSONFile.getGeoJSONData(table)
107                 file.write(json.dumps(data, indent=4, ensure_ascii=False))
108                 MessageBox("Info", "Arquivo encontrado")
109         except FileNotFoundError:
110             MessageBox("Erro", "Arquivo n o encontrado")
111
112     #Cria o GeoJSON
113     @staticmethod
114     def getGeoJSONData(table):
115         properties = DAO.selectColumnsNamesFromTable(table)
116         features = []
117         results = DAO.selectAllColumnsFromTable(table)
118
119         for data in results :
120             feature = GeoJSONFile.createFeature(properties, data)
121             features.append(feature)
122
123         #json_string = json.dumps(features)
124
125         #Monta arquivo
126         featureCollection = {}
127         featureCollection["type"] = "FeatureCollection"
128         featureCollection["generator"] = "Python Converter"
129         featureCollection["copyright"] = "Data from Pauliceia"
130         featureCollection["features"] = features
131         return featureCollection
132
133     #Cria o GeoJSON
134     @staticmethod
135     def createFeature(columns, data):
136         feature = {}
137         properties = {}
138         geometry = {}
139
140         for value, column in zip(data, columns):
141             if column == "geom":
142                 geometry = value.geojson
143             elif isinstance(value, datetime.date):
144                 value = value.isoformat()
145             elif isinstance(value, Decimal):
146                 value = float(value)
147
148             if column not in ["geom", "id", "version", "changeset_id"]:
149                 properties[column] = value
150
151         feature["type"] = "Feature"
152         feature["properties"] = properties
153         feature["geometry"] = geometry
154
155         return feature
156
157 #####
158 ##### INTERFACE #####
159 ##### GRAFICA #####
160 #####

```

```

161 class App(Tk):
162
163     #Contrutor
164     #Cria a janela principal e o conte do delas
165     def __init__(self, *args, **kwargs):
166         Tk.__init__(self,*args,**kwargs)
167
168         #Janela
169         self.geometry('310x220')
170         self.resizable(width=FALSE, height = FALSE)
171         self.title("Exportar GeoJSON")
172
173         #Conte do
174         container = Frame(self)
175         container.pack(side="top",fill="both", expand=True)
176         container.place(relx=0.5, rely=0.5, anchor=CENTER)
177         container.grid_rowconfigure(0, weight=1)
178         container.grid_columnconfigure(0, weight=1)
179
180
181         #Telas a serem exibidas
182         self.frames = {}
183         frame = MainPage(container, self)
184         self.frames[MainPage] = frame
185         frame.grid(row=0, column=0,sticky="nsew")
186
187         self.showFrame(MainPage)
188
189     #Exibe a tela correspondente a context
190     def showFrame(self, context):
191         frame = self.frames[context]
192         frame.tkraise()
193
194 class MainPage(Frame):
195
196     #Contrutor
197     def __init__(self, master, controller):
198         Frame.__init__(self,master)
199
200         #Labels
201         self.lblTitle = Label(self, text="Exportar GeoJSON", font='Helvetica 12 bold')
202         self.lblTitle.grid(row=0, padx=10, pady=10, columnspan=2)
203
204         self.lblInitTime = Label(self, text="Tabela:")
205         self.lblInitTime.grid(row=1,  padx=10, pady=5, column=0, sticky=E)
206
207         #Buttons
208         self.enterBtn = Button(self, text="OK", command=self.enterBtn, border=1, width
                               =17)
209         self.enterBtn.grid(row=3, columnspan=2, column=0, padx=10, pady=5)
210
211         #DropDown List
212         optionsList = DAO.selectAllTableNames()
213         inicio = StringVar()
214         inicio.set(optionsList[0])
215         self.Option = OptionMenu(self,inicio,*optionsList)
216         #self.Option.config(width=9)
217         self.Option.grid(row=1,column=1)

```



```

218
219     #Fun o do bot o OK
220     #Converte dos dados da tabela para GeoJSON e cria um arquivo com eles
221     #chama self.getAllFilesFromFolder
222     def enterBtn(self):
223         GeoJSONFile.getGeoJSONFile(self.Option['text'])
224
225 #Cria caixas de mensagens com t tulo = titleValue e corpo de menssagem = messageValue
226 def MessageBox(titleValue, messageValue):
227     messagebox.showinfo(title = titleValue,message = messageValue)
228
229 class DecimalEncoder(json.JSONEncoder):
230     def default(self, o):
231         if isinstance(o, decimal.Decimal):
232             return (str(o) for o in [o])
233         return super(DecimalEncoder, self).default(o)
234
235 #####
236 ##### PRINCIPAL #####
237 #####
238 #####
239 app = App()
240 app.mainloop()

```

# ANEXO E – GeoJSON gerado pelo *script* em Python 3

```
1 {
2   "type": "FeatureCollection",
3   "generator": "Python Converter",
4   "copyright": "Data from Pauliceia",
5   "features": [
6     {
7       "type": "Feature",
8       "properties": {
9         "rua": "rua joao theodoro",
10        "numero": "99",
11        "ano": "1931",
12        "nome": "Cine Colombinho",
13        "fonte\n": "Almanak Laemmert. Volume II, p. 162",
14        "confiden": 0.888
15      },
16      "geometry": {
17        "type": "Point",
18        "coordinates": [
19          -46.61761289251594,
20          -23.535449606170875
21        ]
22      }
23    },
24    {
25      "type": "Feature",
26      "properties": {
27        "rua": "rua direita",
28        "numero": "33",
29        "ano": "1931",
30        "nome": "Cinema Alhambra",
31        "fonte\n": "Almanak Laemmert. Volume II, p. 163",
32        "confiden": 0.888
33      },
34      "geometry": {
35        "type": "Point",
36        "coordinates": [
37          -46.63592214103923,
38          -23.548059811239774
39        ]
40      }
41    },
42    {
43      "type": "Feature",
44      "properties": {
45        "rua": "avenida sao joao",
46        "numero": "161",
47        "ano": "1931",
```

```

48         "nome": "Cinema Avenida",
49         "fonte\n": "Almanak Laemmert. Volume II, p. 165",
50         "confiden": 0.888
51     },
52     "geometry": {
53         "type": "Point",
54         "coordinates": [
55             -46.6395508108016,
56             -23.542719768246716
57         ]
58     }
59 },
60 {
61     "type": "Feature",
62     "properties": {
63         "rua": "rua do gazometro",
64         "numero": "47",
65         "ano": "1931",
66         "nome": "Cinema Gloria",
67         "fonte\n": "Almanak Laemmert. Volume II, p. 166",
68         "confiden": 0.888
69     },
70     "geometry": {
71         "type": "Point",
72         "coordinates": [
73             -46.62373643888829,
74             -23.54436453445807
75         ]
76     }
77 },
78 {
79     "type": "Feature",
80     "properties": {
81         "rua": "rua da mooca",
82         "numero": "407",
83         "ano": "1931",
84         "nome": "Cinema Palacio Moderno",
85         "fonte\n": "Almanak Laemmert. Volume II, p. 168",
86         "confiden": 0.0
87     },
88     "geometry": {
89         "type": "Point",
90         "coordinates": [
91             -46.5897960825895,
92             -23.5586769430153
93         ]
94     }
95 },
96 {
97     "type": "Feature",
98     "properties": {
99         "rua": "rua barra funda",
100         "numero": "64",
101         "ano": "1931",
102         "nome": "Cinema Roma",
103         "fonte\n": "Almanak Laemmert. Volume II, p. 169",
104         "confiden": 0.888
105     },

```

```

106         "geometry": {
107             "type": "Point",
108             "coordinates": [
109                 -46.65468787492831,
110                 -23.530846179611043
111             ]
112         }
113     },
114     {
115         "type": "Feature",
116         "properties": {
117             "rua": "rua sebastiao pereira",
118             "numero": "62",
119             "ano": "1931",
120             "nome": "Cinema Royal",
121             "fonte\n": "Almanak Laemmert. Volume II, p. 170",
122             "confiden": 0.888
123         },
124         "geometry": {
125             "type": "Point",
126             "coordinates": [
127                 -46.64880214461548,
128                 -23.539697785865442
129             ]
130         }
131     },
132     {
133         "type": "Feature",
134         "properties": {
135             "rua": "rua da mooca",
136             "numero": "90",
137             "ano": "1931",
138             "nome": "Cine Santo Antonio",
139             "fonte\n": "Almanak Laemmert. Volume II, p. 171",
140             "confiden": 0.888
141         },
142         "geometry": {
143             "type": "Point",
144             "coordinates": [
145                 -46.58347019779886,
146                 -23.559941777224104
147             ]
148         }
149     },
150     {
151         "type": "Feature",
152         "properties": {
153             "rua": "rua quinze de novembro",
154             "numero": "30",
155             "ano": "1931",
156             "nome": "Cinema Triangulo",
157             "fonte\n": "Almanak Laemmert. Volume II, p. 173",
158             "confiden": 0.888
159         },
160         "geometry": {
161             "type": "Point",
162             "coordinates": [
163                 -46.63418152489169,

```

```

164         -23.547215195936413
165     ]
166 }
167 },
168 {
169     "type": "Feature",
170     "properties": {
171         "rua": "rua jose paulino",
172         "numero": "204",
173         "ano": "1931",
174         "nome": "Cine Theatro Bom Retiro",
175         "fonte\n": "Almanak Laemmert. Volume II, p. 175",
176         "confiden": 0.888
177     },
178     "geometry": {
179         "type": "Point",
180         "coordinates": [
181             -46.64039396930547,
182             -23.528395725334672
183         ]
184     }
185 },
186 {
187     "type": "Feature",
188     "properties": {
189         "rua": "avenida brigadeiro luiz antonio",
190         "numero": "79",
191         "ano": "1931",
192         "nome": "Cine Theatro Paramount",
193         "fonte\n": "Almanak Laemmert. Volume II, p. 176",
194         "confiden": 1.0
195     },
196     "geometry": {
197         "type": "Point",
198         "coordinates": [
199             -46.6386571119363,
200             -23.5542557398398
201         ]
202     }
203 },
204 {
205     "type": "Feature",
206     "properties": {
207         "rua": "rua vinte e quatro de maio",
208         "numero": "23",
209         "ano": "1931",
210         "nome": "Cine Theatro Sant'Anna",
211         "fonte\n": "Almanak Laemmert. Volume II, p. 177",
212         "confiden": 0.888
213     },
214     "geometry": {
215         "type": "Point",
216         "coordinates": [
217             -46.63952092689992,
218             -23.544271290109307
219         ]
220     }
221 }

```

```
222     ]
223 }
```